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COMPLETE STORY
OF THE
MARTINIQUE
AND
ST VINCENT
HORRORS



BY
WILLIAM A. GARESCHE

U.S. CONSUL TO MARTINIQUE
FOR FIVE YEARS
INCLUDING

THE WORLD'S GREAT DISASTERS

KF 2455

**Gift of The People of the United States
Through the Victory Book Campaign
(A. L. A. — A. R. C. — U. S. C.)
To the Armed Forces and Merchant Marine**

James H. Hall



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HON. WM. A. GARESCHE.

Picture taken at St. Pierre when he was consul to Martinique.

In the introduction of this book Mr. Garesche says: "I feel, in writing this book on the paradise of the West Indian Islands, as if I were compelled to sound a paean, and alas! a dirge."



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**MRS. MARY A. GARESCHÉ, WIFE OF EX U. S. CONSUL
TO MARTINIQUE.**

Mrs. Garesche, like her husband, cannot speak praise enough
of the beauty of the Island of Martinique. Many of
her friends and relatives are numbered among
the dead.

COMPLETE STORY OF THE MARTINIQUE AND ST. VINCENT HORRORS

Incidents of the Awful Volcanic Eruption, Fire and Lava Disaster;
Personal Experiences of Survivors; Pestilence from Decaying Bodies;
War Vessels Rescue the Living; Millions of Dollars to Aid the Suffering;
President Roosevelt's Request to Congress; Acts of Valor; Great Heroism;
Great Vandalism; Great Horror; A Second Pompeii, but Twenty Times
Worse; Thousands of Men, Women and Children Destroyed; No Way of
Escape, only ↑ ↑ ↑ ↑ ↑ ↑ ↑

DEATH! DEATH! EVERYWHERE!

BY

HON. WILLIAM A. GARESCHE

For five years United States Consul at St. Pierre, Martinique; Graduate of Georgetown University, Washington, D. C., and distinguished member of Bar of Missouri for twenty-eight years

SPECIAL ARTICLE BY MONSIEUR VINCENT DEMESSIMY

NATIVE OF ST. PIERRE

COMPRISING ALSO

Graphic Accounts of the World's Great Disasters

**FROM THE DESTRUCTION OF POMPEII TO THE PRESENT TIME
INCLUDING EXPLANATIONS FROM LEADING SCIENTISTS
AS TO THE CAUSE OF THESE ERUPTIONS, THEIR
EXTENT AND FINAL OUTCOME**

**ILLUSTRATED WITH LIFE PHOTOGRAPHS AND
ORIGINAL DRAWINGS**

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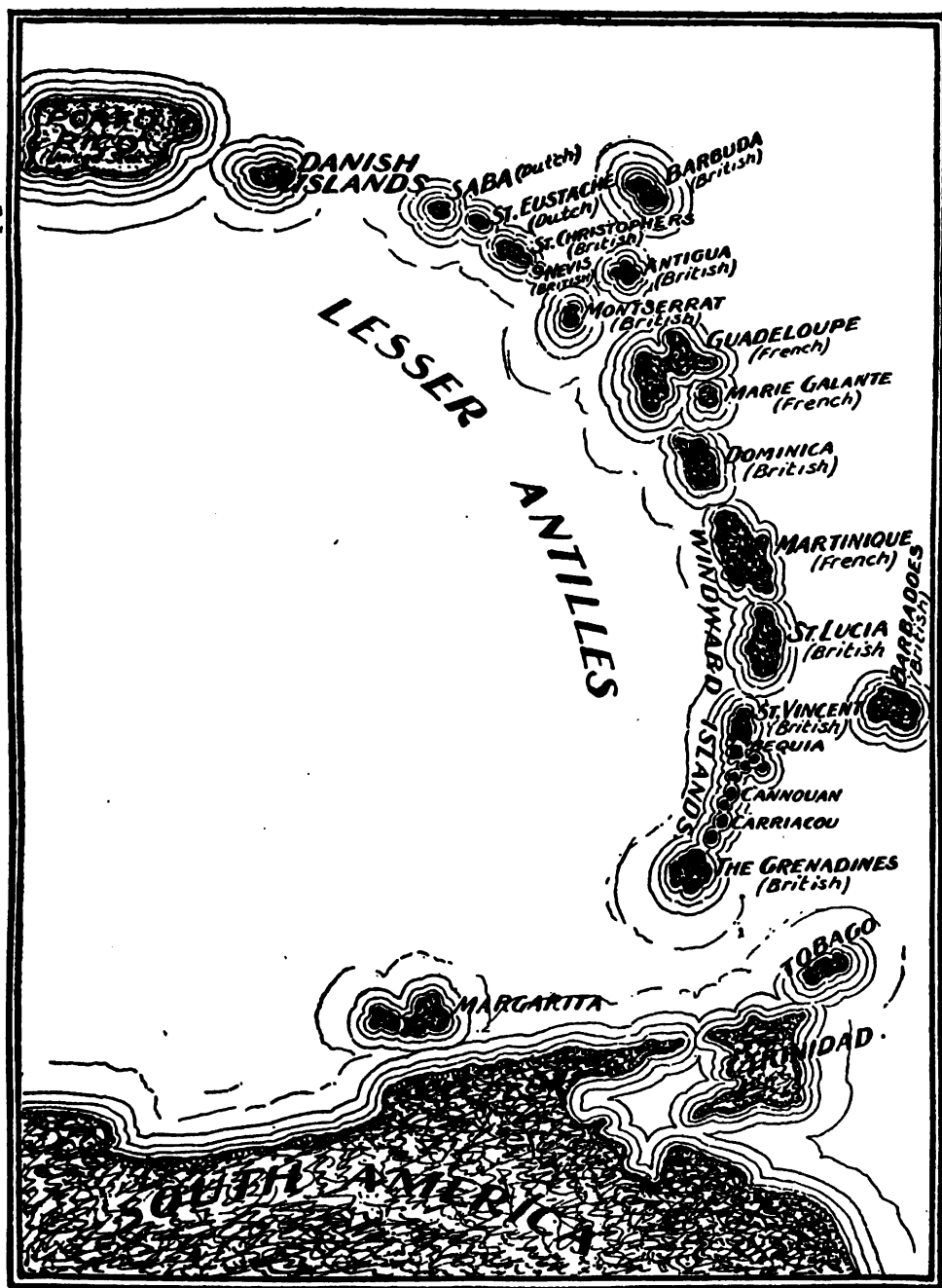
PUBLISHERS' PREFACE.

Calamity proves the kinship of the world. In the presence of disaster differences are lost sight of, enmity ceases, and the great heart of all mankind throbs in sympathy with the afflicted ones. Any event that brings the world together, though it be but for a moment, and though the sacrifice of human life precede it, not only deserves but demands to be recorded that the present and future generations may read of it.

And so, believing that the people of to-day and of to-morrow demand an authentic account of the destruction of St. Pierre and of other similar catastrophes, we offer this volume to the public. Endorsed as it is by one who was born on the island of Martinique and who knows whereof he speaks, and prepared under the supervision of one who spent years there as the accredited representative of the United States and whose personal knowledge covers every phase of the record here presented, it commends itself to the consideration of every reader who would have an accurate account of the terrible holocaust of May 8, 1902.

It is not only the story of the destruction of St. Pierre, but the story of other great disasters as well, and will prove a valuable reference work in that line. The causes of earthquakes, volcanic eruptions and hurricanes are set forth and made clear to the general reader not familiar with scientific theories. We have made it accurate, and have tried to make it interesting and instructive. How well we have succeeded we leave to the judgment of that public which has bestowed such generous approval upon our efforts in the past.

THE PUBLISHERS.



THE VOLCANIC CRESCENT.

INTRODUCTION.

As one who, alas! was Consul to Martinique, writing my impression of the island of Martinique, words failed me there when I was Consul to express its loveliness, and in the sorrow I feel in the destruction of one of its fairest parts I lack expression, I feel in writing this book on the paradise of the West Indian Islands, as if I were compelled to sound a Pæon and alas! a Dirge. I lived there happily as the United States Consul for five years. I knew the people, mingled with them, studied their habits, their customs, and their dispositions, so that, while a stranger when I arrived, they learned to count me as a friend to the people and the island. In saying this, I mean to say that the white aristocracy, descendants of the blue-blooded French, and the Noirs (the colored merchants) were equally my friends. The colored population ranges from darkest black through degrees of mulatto and thence to octaroon, many of whom are as white as the average French citizen of Martinique.

The white ladies were noted for their beauty, and the colored and the octaroons for the regularity of their features according to the Caucasian idea of beauty. There was no social relation between the whites and the colored people in the island, yet the colored and the white merchants met daily either at the "Bourse" (in English the "Merchant's Exchange") or on the "Place Bertin," which was a promenade shaded by beautiful Tamarind trees, where they promenaded, and separating into groups according to their color, discussed their daily business affairs or French politics in a quiet, harmonious way.

The island itself was a dream of Paradise. The blacks and the whites had no occasion to dispute. While the bulk of the people were colored and while the greater area of the island was owned by the whites, there was an element of the colored population, owners of property, educated to the same degree that our own

people in the United States are educated, who felt that as property owners and civilized people they could not afford to allow an outbreak of the ignorant negroes and acted as a "buffer" in keeping them in subjection. Besides, France, who owned and controlled the island, maintained both at Fort de France and St. Pierre a part of the French army, which, while it did no constabulary duty in the towns of Fort de France and St. Pierre, nevertheless patrolled the whole island, mounted or on foot, and was a menace and a terror to any disturbance by the lower element of the population.

As for the island of Martinique itself, I rejoice to say that you cannot find in the world so extraordinarily beautiful a place. I met there tourists who had gone over the world where any civilized man had traveled, and who told me that in the course of their travels they had never seen such successive panoramas of ravishing beauty as Martinique unfolded in their drives and their tours through the island. Imagine, if you can, a country where you encounter naught but hill and dale, mountain and valley, valley succeeding to mountain and mountain succeeding to valley. Imagine, in all this island a system of roads throughout that would make our American streets sink into insignificance. Imagine that bordering these roads are wild flowers—Begonias growing wild, the Hibiscus, that beautiful red bell-shaped flower, of which latter they make hedges in Martinique. Imagine Morne Rouge lying between St. Pierre and the monster Mount Pelee, which so suddenly belched fire, ruin and destruction, and yet so merciless to St. Pierre was merciful to Morne Rouge, lying midway between the two. Imagine Morne Rouge, as I said, a plateau on the rise between St. Pierre and Pelee, the demon of destruction, a lovely country place where flowers bloomed perennially and the scent of whose roses met one at least half a mile ere one reached the village, for Morne Rouge was a bed of roses and all flowering shrubs and plants of the tropics. Cold type and white paper with black ink cannot convey a faint idea, even, of the loveliness of this fair isle.

The people of the island were saturated with French courtesy. Nowhere in the West Indies did the white and colored races dwell

so well in amity, and I speak whereof I know, because I had occasion, officially or unofficially, to visit almost every island in the Lesser Antilles. The people of Martinique were aristocratic by birth, by breeding, by education. The cream of the colored population, while having no social affiliation with the whites, were most intelligent, upright, courteous and well behaved.

The schools from primary to the collegiate course gave to the colored population an education equivalent to the average high school in our country; the French whites sending their children to the convents and colleges maintained by the religious orders, and afterwards sending their sons to Paris or the United States to broaden their education. Hence, the idea so prevalent that the people of Martinique were uneducated, half civilized and ignorant, is a false supposition. The average female servant in Martinique could read, and write a most legible hand.

Those who have driven over the magnificent roads bordered by wild flowers that we cultivate with such care as rare and curious, who have seen the magnificent fields of sugar cane waving in the breeze and awaiting the sickle, who have seen the Cacar bending beneath its weight of berries, who have seen the banana with its wealth of yellow fruit, fruit as well as food; those who have seen the rubber trees in their giant growth casting shade for yards in every direction, who have seen the bread-fruit tree, productive of food and grateful shadow, and who have tasted the "Mang," "the Mang Julie, Mang sans pareil, the Mang d'Or," and others, only they know to what full fruition does the Lord God allow His shrubs and trees to blossom and fruit and shade for the fortunate mortals of this world. And when, in conjunction with all these beauties of nature, you realize that the flow of purest water was unceasing all over the island, that even St. Pierre, a town of 35,000 inhabitants, was never bothered with a fly, that mosquitoes were almost unknown, that epidemics were a rarity, that the health of the whole people was remarkable, that the birth rate was normal, and the death rate extraordinarily small, even for a location anywhere in the world outside of the West Indies. The amusements of the people were simple. The colony every year supported for about

three months an excellent opera troupe from France, granting the company a subvention of about twelve thousand dollars with free use of the finest theater in all the Lesser Antilles, if not in all the West India Islands, with privilege to collect and retain all receipts, requiring the company only to pay the expense of lighting, cleaning and policing the opera house.

No cock fighting, gambling, bull fighting or other such amusements, indulged in by some of the Latin races, were known in Martinique, and any attempt to introduce them would have been frowned on by the people, black as well as white.

The island was equipped with the finest usines or sugar factories, having all the most modern machinery to manufacture sugar and centrifugate it, separating the raw sugar from the molasses. The molasses thus obtained was then transferred to the rum distilleries, where they manufactured the finest rum in the world, all the surplus of the island being taken by the nearby West India Island, the bulk being demanded by French, both in its raw and mature condition. The town of St. Pierre manufactured the finest liquors in the world. They were shipped to France, bottled in fancy glass and reshipped to the countries abroad, labeled as "French Liqueurs." In addition to Creme de Menthe, Curacoa and other well known liquors, Martinique sent abroad "Parfait Amour"—in English, Perfect Love—"Creme de la Vanille," Cream of Vanilla, "Creme des Ananas," "Cream of Pineapple," and others too numerous to mention.

The population was most devout in the observances of the feasts and festivals of the Church. The churches were crowded at all the masses Sundays and on holy days, and Corpus Christi was a day once seen in St. Pierre to be long remembered, with the whole populace suspending labor and following the sacrament in procession to the three altars gorgeously decorated in prominent places of the town.

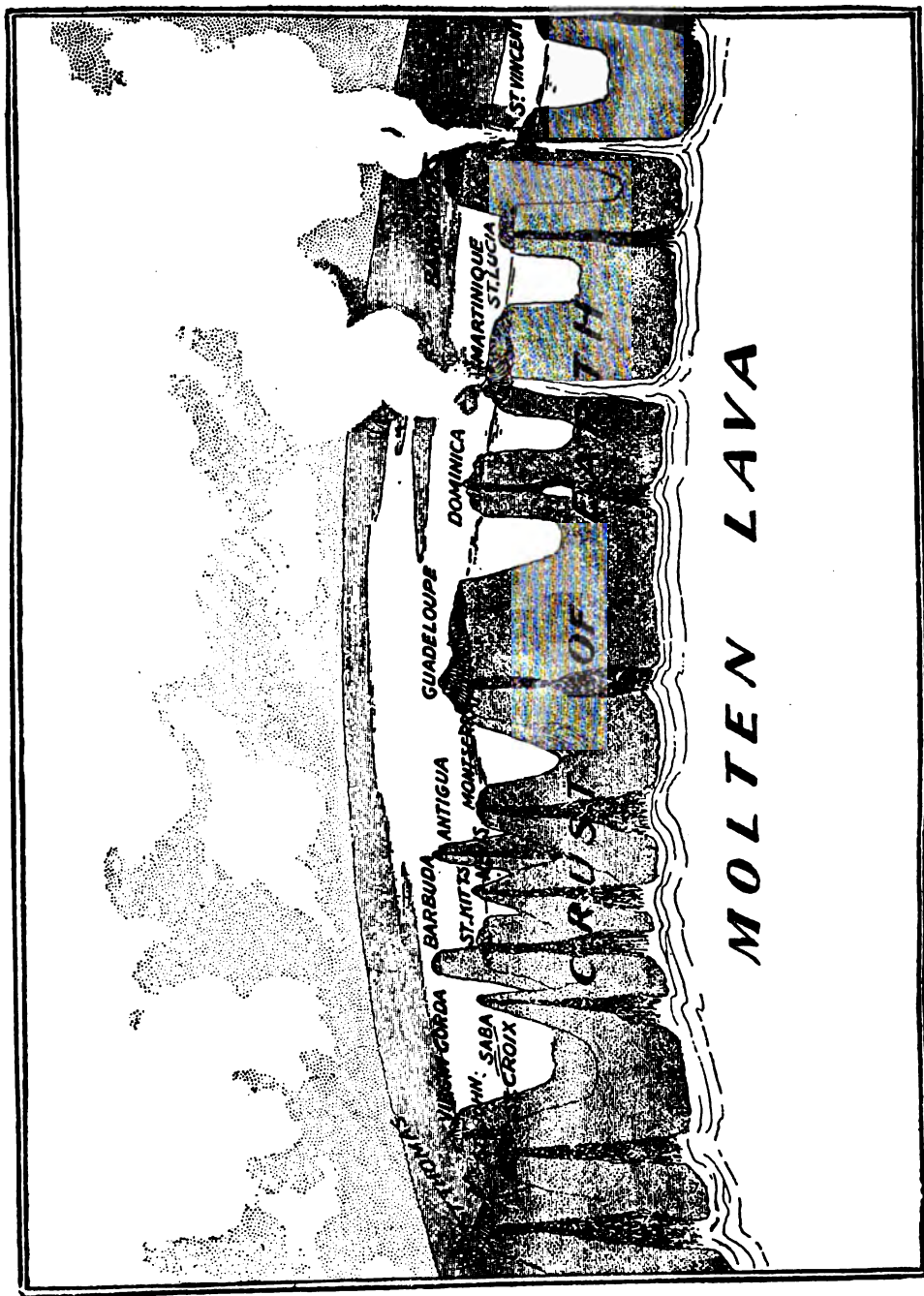
Mi-Careme was a carnival. The colored people, black, mulatto, quadroon and octaroon, quaintly arrayed, danced through the principal streets of the town to the accompaniment of their own musicians; some masked, some girls arrayed as pages, some as mon-

keys, some men as buffoons, and while every one drank his or her rum and water, it was the rarest thing in the world to witness there a case of intoxication. And while on this question of drinking, I wish to say that in the five years I was resident in Martinique I knew only one white man who was a drunkard, and he was tabooed by his whole family; and I can add in addition that in the height of enjoyment in the greatest exuberance of spirits by the colored people genuine intoxication was so rare as to be cause of remark and the person offending was scorned by the negroes themselves.

Fearing that I may tire our readers before they commence the perusal of this work, I can only say in conclusion that Martinique prior to its destruction was the nearest approach to any idea we could have of the Garden of Eden. Alas! like all things earthly, its beauty was evanescent, it has passed away, and while I sigh for its destruction I am proud of the ready sympathy our great and grand country has shown in the hour of distress, and I know that generous hearts of my countrymen will reap full meed of gratitude from that poor impoverished people. Thinking of what it is, knowing what it was—and pray God may be again—I can only say in conclusion, praying for its restoration as I now and always shall do, "*Haec olim meminisse juvabit*" (it will be a delight always to me to remember these things).

M. A. Garesche

May 14th, 1902.



MOLTEN LAVA

A portion of the earth's crust showing how earthquakes and volcanic upheavals are related—
Mountainous islands thrown up from the sea.

CONTENTS.

CHAPTER I.

THE DESTRUCTION OF ST. PIERRE, MARTINIQUE.

	PAGE
Forty Thousand Souls Hurlled Into Eternity in an Instant—Destruction, Devastation and Death—An Avalanche of Fire—Rivers of Molten Lava—A Glimpse of the Lower Regions—Falling Buildings Engulf Fleeing Men and Women—A Carnival of Horrors—Destruction of Shipping in the Harbor—Later Eruptions	29

CHAPTER II.

THE ISLAND OF MARTINIQUE—ITS HISTORY, TOPOGRAPHY, VEGETATION AND INDUSTRIES.

The Most Picturesque of the West Indian Isles—Discovered by Columbus—Peculiar in Topography—Famous as the Home of Josephine—Startling Record of Great Disasters in the Island—Commercial Interests of the Island	60
--	----

CHAPTER III.

THE PEOPLE OF MARTINIQUE—THEIR LANGUAGE, RELIGION, EDUCATION AND HABITS.

The Perfect Physique—Grace—Carriers of Merchandise—Dress—Peculiarities, Customs, Society, Amusements—A Paris in Embryo—Market Place—Government, Literature, Public Schools, Private Schools, Morals.....	81
--	----

CHAPTER IV.

MONT PELEE IN SLUMBER AND ACTION.

Mont Pelee as it Seemed to the Inhabitants of Martinique—Famous Summer Resort—Pelee Not Feared by Natives—French Government Bulletin—Mont Pelee's Death—Knell Fate Expected—Letters Telling the Story of Danger—The Governor's Report.....	96
--	----

CHAPTER V.

QUICK RELIEF FOR THE SUFFERERS.

Hunger and Destitution of Survivors—Message of President Roosevelt—Quick Action of Congress—\$200,000 Appropriated at Once—Activity of Navy and War Departments—Many Vessels to the Relief—The World Hears and Heeds the Cry of the Destitute—Nations Respond—King Edward Sends \$5,000 as a Personal Contribution—President Loubet Gives \$4,000..	118
---	-----

CHAPTER VI.

DISPOSING OF THE DEAD AND CLEARING AWAY THE DEBRIS.

Visitors See Death, Chaos and Silence—Appalling Scenes of Volcanic Disaster	PAGE
—Corpses Found in Piles on Shore—Buildings Torn Down—Lava Blocks	
Form Titanic Ruins—Relief Parties Find No Sign of Life—Cyclones of	
Gas, Mud and Flames—Looting the Dead—General Disorder.....	141

CHAPTER VII.

ST. VINCENT AND ITS DEADLY VOLCANO MONT SOUFRIERE.

General Description of the Island—Climate, Soil and Productiveness—Pic-	
turesque Kingston—St. Vincent the Scene of Many Volcanic Disasters—	
La Soufriere in Olden Times—Its Latest Eruption—American and British	
Relief—A Diary of Terror.....	151

CHAPTER VIII.

THE FUTURE OUTLOOK OF MARTINIQUE AND ST. VINCENT.

France Offers to Transport All Wishing to Leave Martinique—Disorganization	
of Trades—St. Pierre Must Not Be Rebuilt—Fort de France Safe—Ex-	
periences of Mr. George Kennan and Mr. G. J. Kavanaugh—Professor	
Hellprin's Discoveries—Aid to Science—New United States Consul to	
Martinique	174

CHAPTER IX.

RUMBLING THROUGHOUT THE CARIBBEAN SEA.

Volcanic Islands of the West Indies—Non-Volcanic Islands—Topography	
Liable to Change Islands in which the United States are Interested—	
Sinking of Ocean Bed—Interesting Speculations—Earthquake in Guate-	
mala—Other Cities Damaged, etc., etc.....	191

CHAPTER X.

STORIES OF MARTINIQUE SURVIVORS.

No. 1 Story of the Destruction—No. 2 Story of the Destruction—A Cyclone of	
Gas—Story of an Officer on the Danish Ship Vakyrien—Pitiful Story of a	
Sailor on the Roraima.....	205

CHAPTER XI.

LOOKING FOR THE END OF THE WORLD.

Religious Sects that See in the Martinique and St. Vincent Horrors the Begin-	
ning of the Total Destruction of the Earth—Bible Prophecies Quoted to	
Prove the Second Advent of the Messiah at Hand—Prof. Mangasarian	
Refutes the Idea That the World is to Be Destroyed—The Race May	
Become Extinct—Hopeful Signs of the Times.....	212

CHAPTER XII.

LIGHT ON MYSTERY.

Home of the Volcano—Regions to Be Avoided—Asama's Vast Crater—Vol-	
canoes of Iceland, South America, Central America, Alaska—Craters in	
the United States—Mt. Hood, Mt. Rainier, ...	230

CHAPTER XIII.

VOLCANOES—THEIR CAUSE.

Volcano Mountains—Formation of Craters—What Precedes Eruptions—Pacific Ocean Bounded by Volcanoes—Matter Ejected from Volcanoes—Distance Ejected—Nature of Lava—How Lava Moves—Gas and Sulphur and Poison Ejected	PAGE 247
---	-------------

CHAPTER XIV.

THE FAMOUS VOLCANOES OF THE WORLD.

What They Are—How Formed—Table of Volcanoes—Pacific Ocean—Atlantic Ocean—Indian Ocean—Mediterranean Sea.....	268
--	-----

CHAPTER XV.

THE DESTRUCTION OF POMPEII.

Lost for Centuries—Excavations Begun in 1755—Living Pictures—Bulwer's Magic Description—Love Amid the Ruins—Boiling Water—Ghostly Pictures	275
--	-----

CHAPTER XVI.

MODERN ERUPTIONS OF VESUVIUS.

Three Thousand People Killed in 1631—Connection Between Earthquakes and Volcanoes—The Eruption of 1779 a Magnificent Display—Modern Eruptions—Pictures Showing How "Vesuvius Sweated Fire".....	294
---	-----

CHAPTER XVII.

THE TERRIBLE ERUPTION OF KRAKATOA.

Until Recently Krakatoa Almost Unknown—First Signs of Eruption—Air Filled with Fine Dust and Air Waves Encircle the Earth—Remarkable Phenomenon in 1883—Terrific Eruption in That Year—Most Tremendous Explosion Ever Known.....	298
--	-----

CHAPTER XVIII.

HAWAIIAN ERUPTIONS AND THE FAMOUS KILAUEA AND MAUNA LOA.

Magnificent Description by an Eye-Witness—A River of Molten Metal—Continual Stream of Lava Heats the Ocean for a Distance of Twenty Miles—Mauna Loa's Crater the Largest of Any Volcano in the World.....	312
---	-----

CHAPTER XIX.

VOLCANOES OF THE PHILIPPINE ISLANDS.

Famous Volcanoes Now, Possessions of the United States—The Mayon in Province of Luzon—Taal South of Manila—Many Destructive Eruptions	320
---	-----

CHAPTER XX.

DESTRUCTIVE ERUPTIONS OF ETNA—OLDEST ON RECORD.

The Eruptions of Mount Etna the Oldest Recorded of Any in the History of the World—The Poet Virgil Describes It—Ancients Believed a Living Giant Resided Under the Mountain—A Stone Fifty Feet in Diameter Thrown from Its Crater..... 333

CHAPTER XXI.

EARTHQUAKES, THEIR CAUSE AND FREQUENCY.

Earthquakes the Most Destructive Agent of Nature—Narratives of Calamities of a By-gone Century—Frequent Occurrence of Earthquakes—Scientific Theory of Earthquakes..... 347

CHAPTER XXII.

DISASTROUS EARTHQUAKES OF HISTORY.

Record of Earthquakes from 464 B. C. to the Present Time—Earthquake in Ancient Sparta Which Had an Important Political Bearing—Gibbon's Description of an Earthquake—Fifty Thousand Slain at Lisbon..... 355

CHAPTER XXIII.

WHIRLWINDS, CYCLONES, HURRICANES, AND TORNADOES.

Whirlwinds—How Caused—Velocity—The Dread of the Desert—Cyclones—How Formed—Course—Velocity—Where They Take Place—Damage Done—Hurricanes—How Formed—Danger—Course—Climax—Track—Phenomena—Cause of Tornadoes—Their Appearance—Damage Done—When They Occur—What to Do..... 362

CHAPTER XXIV.

THE JOHNSTOWN FLOOD.

Great Disaster in the United States—Loss of Life in Johnstown Flood, 2,300 Men, Women and Children—Breaking of Dam in Conemaugh Lake—People Warned—Relief Quick—Damage of Other Towns—Communication Cut Off—Fire and Darkness Add Horror—Cambria City Swept Away, Millville Gone, Woodville and South Fork Wrecked—Stories by Survivors—Identification of Bodies, Clearing the Debris..... 367

CHAPTER XXV.

DESTRUCTION OF GALVESTON, TEXAS.

Tidal Wave, Hurricane, Loss of Life, Destruction of Property—An Awful Saturday Night—Population—Storm Seasons—How Storms Are Diverted—Storm of 1875—A Solemn, Sombre Sunday—Plundering the Dead—Martial Law Enforced—Decomposition of Bodies—Relief..... 402

CHAPTER XXVI.

THE WEST INDIAN VOLCANOES AND THE NICARAGUA CANAL.

Disturbance in Lesser Antilles—Professor Hellprin's Views Regarding the Collapse of These Islands—Nicaragua Canal Route in Danger—Weakness of Earth's Crust in Certain Localities—Scientist's Former Ideas of Craters Scouted—The Future of the World—Drilling the Earth for Heat—Prophecies for the Year 1902—God Reigns—The World Lives..... 456



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ST. PIERRE HARBOR AND CITY.

It is difficult to associate this busy, peaceful harbor with the recent destruction of life and property. It has been found that the following ships were lost in the harbor: The steamers Boraima and Grappier and the sailing ships Nord Amerika, Terba, Ludovico, Sacre Coeur, Goellette, and Gabrielle.



Copyright, 1902, by Mrs. Mary A. Garesché.

**RUE PETIT VERSAILLES—ONE OF THE PRINCIPAL STREETS OF
ST. PIERRE.**

This picture was taken before the destruction of the city. In another place in this book will be found a picture of this street as it appeared shortly after its destruction.

SPECIAL ARTICLE

BY

VINCENT DE MESSIMY, A NATIVE OF ST. PIERRE.

If there has ever been a book written to commemorate the most awful calamities that have befallen humanity, this is indeed the book.

Pompeii, Lisbon, Caraccas and Yeddo are names that have long caused the heart of every human being to shudder, but to-day we have to add to that terrifying list another name: St. Pierre of Martinique. St. Pierre formerly stood for all that was beautiful and enchanting. To recall it reminded one of peace in a luxuriant garden, a place made happy and kept in bloom by the fancies of nature.

Many things combine to make the island of Martinique more beautiful and more romantically interesting than any other of the West Indian islands. Its mountain scenery is more poetically beautiful, its towns more strikingly picturesque, its architecture more unique, and its population more beautiful in color and type than anywhere else among the Windward Islands.

St. Pierre was the principal city of the island in point of population and commercial importance, although Fort de France is the civil capital.

Down to the water's edge the streets of St. Pierre descended. Behind were gardens and plantations sloping up the mountains. The city was built on rising land, and the streets, which followed the coast line, mounted one above the other, so that the upper ones were two hundred feet above the sea. The streets were intersected at right angles by long avenues which descended to the water's edge; sometimes, as in the native quarter, the descent was so sharp as to end in steps. Down the center or at the sides of every street

ran canals of rapid flowing water, carrying the refuse of the city to the sea.

Many of the houses were built in the eighteenth century, and were constructed with marble and hardwood floors. The color of the houses was a bright yellow, with blue or violet shutters and doors, which gave the island town a coquettish gaiety. These houses were set in tropical gardens, and shone like gold in the splendors of a dazzling sunlight.

St. Pierre sprang into prominence as the home and refuge of many beautiful families that fled to it from the terrors of the French revolution. The new people made of it a new realm; indeed a race so gentle, kindly and generous that the expression "un coeur de Creole" has long become synonymous with a golden heart.

True it is that beauty lasts only for a season. On the morning of May 8, 1902, St. Pierre became suddenly the center of the very fire of hell. Mount Pelee, which for centuries had hovered over the Metropolis City, broke the granite bonds which had held its hidden fires in check and belched forth its river of fire until nature's elements had spent its force.

The volcano had, on several occasions, warned the people who attempted to abide at its foot, but these threats had no serious effect more than to frighten them into settling a little farther away. The skies were too blue and the atmosphere too pure for the brooding of dire results; the air was filled with music too sweet to be ever pierced with the shrieks of human victims; the earth itself was too gorgeously attired with shrubs and flowers to be replaced by ashes and lava. So thought the good people of St. Pierre, and yet Mount Pelee was all this time standing like a sentinel holding itself ready to respond to powers within.

The fatal, never to be forgotten work was accomplished within the space of three short minutes. The verdant hills, the rolling plains, the rapid rivers, and the city of St. Pierre itself became a bed of boiling lava, while the sky was hidden by clouds of burning ashes, molten rocks and sheets of flame.

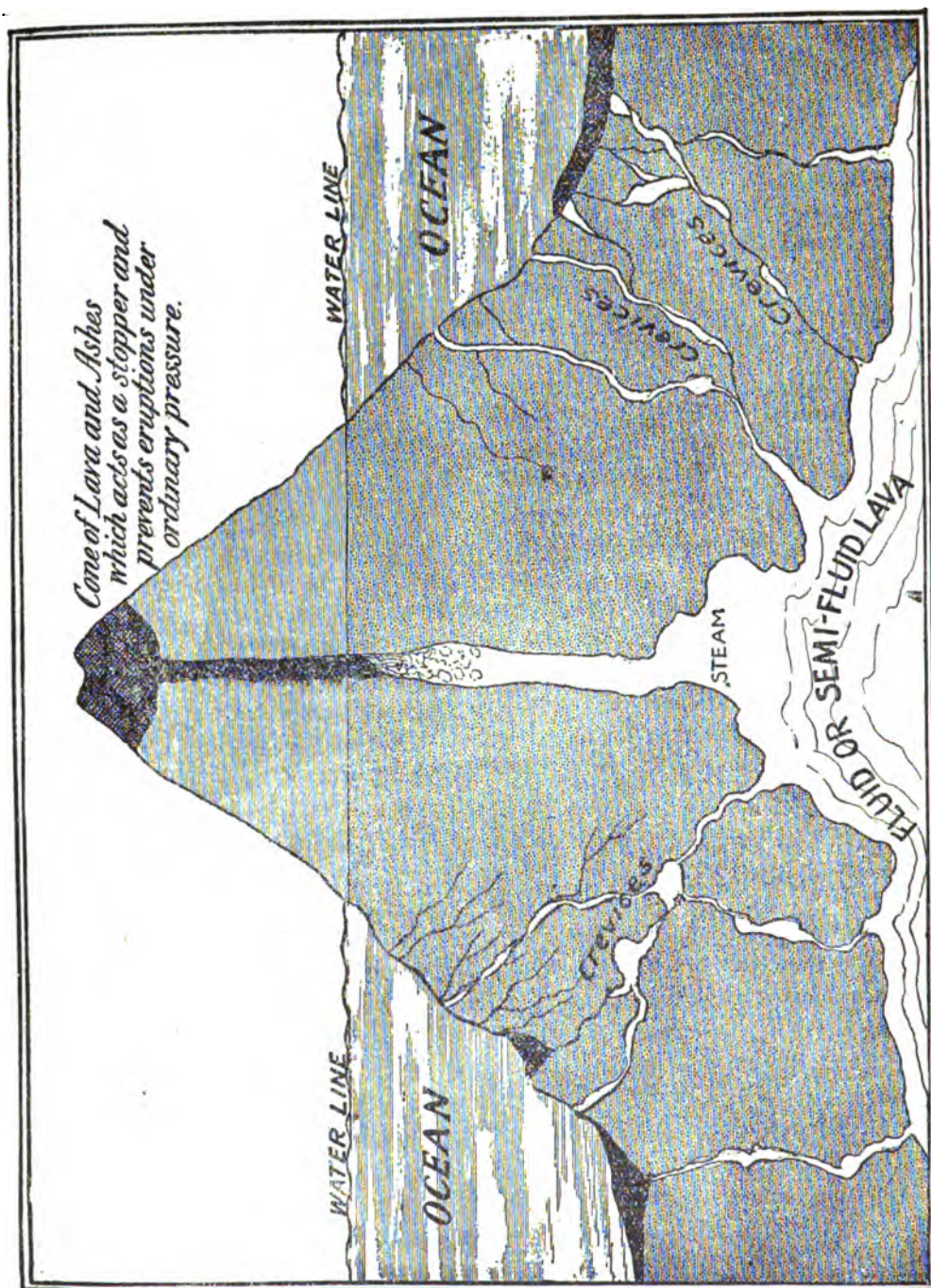
St. Pierre is no more; its population of over 30,000 souls is

buried under a shroud of ashes, and fully 20,000 more, caught on the path, are to be added to the list of dead or dying. I say dying for who though alive will not mourn their dead until they too shall journey on into the unknown and there learn the secret of death and suffering?

The sorrow of the people of the West Indies is universal and sympathy is expressed by all human hearts. The only consolation in this great catastrophe is the thought that the whole world mourns—not France alone, but every nation of the civilized world. The prompt, generous impulse of the United States of America and Great Britain in answering the cry of distress, hunger and pain, will never be forgotten by the French Republic.

As a native born at St. Pierre, Martinique, I am lamenting the loss of many relatives and friends. My eyes fill with tears at the thought of the dead, yet my whole heart throbs with gratitude for the generous sympathizers, and I can only say, Amen, God's will be done.

Sincerely Yours
Vincent de Messimy



*Cone of Lava and Ashes
which acts as a stopper and
prevents eruptions under
ordinary pressure.*

THE ABOVE CUT SHOWS THE CAUSE OF VOLCANIC ACTION.

The molten mass in the interior of the earth comes in contact with water, generates steam, and escapes where the earth's crust is thinnest.

ILLUSTRATIONS.

	Page
Portrait—Hon. William A. Garesche.....	3
Portrait—Mrs. Mary A. Garesche, Wife of Ex-United States Consul to Martinique	4
United States Consulate at St. Pierre.....	19
Portrait—Monsieur Vincent De Messimy.....	20
St. Pierre Harbor and City.....	27
Rue Petit Versailles—One of the Principal Streets of St. Pierre.....	28
Lighthouse and Wharves at St. Pierre, Showing the Commercial Industry of Martinique to be Large.....	39
Cathedral at St. Pierre.....	40
First Mission on Island of Martinique, St. Pierre.....	57
Plantation of Carbet, Martinique.....	58
A Native of Martinique—Woman of Wealth.....	75
Lower Class Native Woman, St. Pierre.....	76
Upper Class Native Woman, St. Pierre.....	76
Plantation Owner and One of His Laborers.....	92
Public Park, St. Pierre.....	93
Native Home, Martinique.....	111
The Late United States Consul at St. Pierre and His Family, All of Whom Lost Their Lives in the Great Disaster.....	112
White River, St. Pierre, Dividing the Old Town From the New.....	129
Steamship Roraima, Destroyed at St. Pierre, May 8, 1902.....	130
Divers for Money Around Steamship, St. Pierre Harbor.....	130
Harbor of St. Pierre During the Eruption of Mont Pelee.....	147
Caught in the Eruption of Mont Pelee, May 8, 1902.....	148
Eruption of Mont Pelee as Described by An Eye-Witness.....	165
Market Place at St. Pierre, Morning of the Eruption.....	166
Members of the First Relief Party Who Visited St. Pierre After Its Destruction..	183
The Story of Martinique's Awful Calamity.....	184
Destruction of St. Pierre's Inhabitants.....	201
Stricken Dead On the Street.....	202
Raoul Sarteret (Alias Peleno).....	219
Victor Hugo Street, St. Pierre, in Ruins.....	220
Ruins of the American Consulate, St. Pierre.....	220
All That Remained of the Convent, St. Pierre.....	237
Ruins of the Cathedral of St. Pierre.....	238
United States Cruiser "Cincinnati," First Relief Vessel Sent to St. Pierre by the United States Government.....	255
A Mother's Love.....	256
Volcano in Albay, Philippine Islands.....	273

ILLUSTRATIONS.

	Page
Red Cross Society Carrying Relief to Martinique.....	274
Burning the Dead Bodies at St. Pierre.....	291
Ghoulish Thieves Looting the Bodies of the Dead and Stealing Money from the Ruins—St. Pierre.....	292
Parliament House, Bridgetown, Island of Barbados.....	309
Doing the Family Washing.....	309
La Soufriere, Island of St. Vincent.....	310
Women Who Coal Ships at St. Vincent.....	327
Park, Fort De France.....	328
Castries, Island of St. Lucia.....	377
Birdseye View of the Town of Charlotte, Island of St. Thomas.....	377
Town of St. Kitts, Island of St. Christopher.....	378
Street Scene, Bridgetown, Island of Barbados.....	378
Women Washing Clothes in the White River, St. Pierre.....	395
Sulphur Lake in an Extinct Crater.....	395
Women Unloading Coal from Steamer.....	396
Road Scene, Island of Barbados.....	396
Vesuvius in Eruption—The Volcano that Destroyed Pompeii, Killing Legions.....	429
Petrified Human Bodies found while Excavating the Ruins of Pompeii.....	430
Volcano Mayon	447
Street Scene, Charlotte Amelle.....	448
Morne Rouge	448
Street Scene, Roseau.....	448
Fort De France.....	448



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U. S. CONSULATE AT ST. PIERRE.

The above picture shows the author of this book, Wm. Garesche, and his assistant, in the building occupied by him as the U. S. consulate. This assistant lost his life in the recent eruption.



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MONSIEUR VINCENT DE MESSIMY.

Native of Martinique, who contributed a special article for this book.

COMPLETE STORY OF THE MARTINIQUE AND ST. VINCENT HORRORS

CHAPTER I.

THE DESTRUCTION OF ST. PIERRE, MARTINIQUE.

Forty Thousand Souls Hurlled Into Eternity in an Instant—Destruction, Devastation and Death—An Avalanche of Fire—Rivers of Molten Lava—A Glimpse of the Lower Regions—Falling Buildings Engulf Fleeing Men and Women—A Carnival of Horrors—Destruction of Shipping in the Harbor—Later Eruptions.

St. Pierre is as dead as Pompeii. Most of her people lie fathoms deep in a tomb made in the twinkling of an eye by the collapse of their homes, and sealed forever under tons of boiling mud, avalanches of scoria and a hurricane of volcanic dust.

Since the day when Columbus felt the wonderful thrill of the discovery of a new world and learned the charm of beautiful islands set in a splendid sea, the West Indies have been a strange mingling of peace and war, beauty and desolation, languorous ease and bitter destitution. Where one charm has been lacking another has beckoned. Nature has smiled for years and at last swept away all the fruits of her bounty in an hour of terror.

THE WEST INDIES A PARADISE.

Pestilence and earthquake, tornado and war, all these and more have disturbed the fond dreams of those who have thought to find in the West Indies the earthly paradise which they hoped to find.

In a riot of vegetation and under warm, sunny skies, with the soil extremely productive and the sea alive with food, the general lot of the people of the West Indies has been poverty. At times and in certain islands there has been a high degree of prosperity, but usually some calamity has burst upon such favored places after comparatively long immunity.

In recent years the almost universal trouble in the West Indies has been industrial distress. The sugar markets of the world have been so flooded with the bounty-fed product of Germany, France, and other European countries that the greatest business of the beautiful chain of islands lying between the Atlantic and the Caribbean Sea has gone from bad to worse. Capitalists have refused to invest their money in modern mills. The laboring population has been wanting in thrift and intelligence, after the usual manner of the tropics. Decay has taken the place of progress. The islands have grown poor while leading countries of the world have been prospering as they never did before.

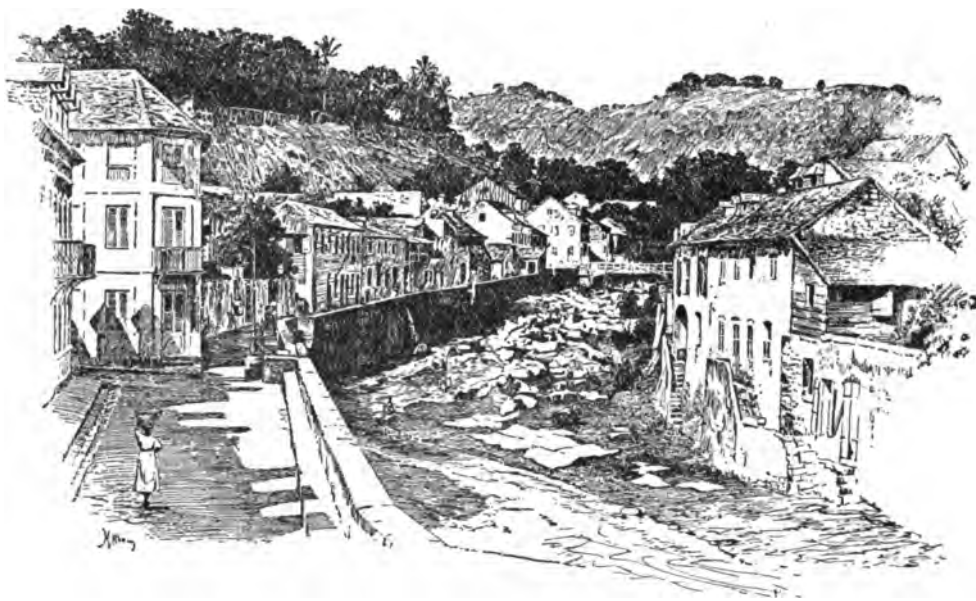
FRENCH ISLANDS PROSPEROUS.

But the French islands of Martinique and Guadeloupe, with the islets pertaining to them, have escaped, in large measure, the hard fate of the islands which are British and those which, until 1898, belonged to Spain. The large, independent island of Hayti has fared worst of all, and the Danish islands have drifted along without growth or progress. The French possessions have been exceptionally comfortable because they have benefited by the costly encouragement given their sugar-growers by the French Government.

In the summer of the brief war between the United States and Spain it was noted by the newspaper correspondents and others who went from one island to another in the West Indies that Martinique, especially, seemed quite progressive and prosperous. At St. Pierre and Fort de France, the principal towns, there was evidence of better times than most of the neighboring islands knew. It seemed that the 400,000 persons, in round numbers, who lived under the flag of France, in the West Indies, were exceptionally favored. Now more than one-eighth of them all are dead as the result of a single awful outburst of nature's violence.

THE ISLAND OF MARTINIQUE.

Martinique, the most southerly of the West Indies group, is a picturesque island. It is mountainous and volcanic in every portion, having, all told, large and small, 400 mountains. Its coast is deeply indented by bays, and while the extreme breadth is fifteen miles the mean breadth is not more than four miles. It is really the product of five or six volcanoes, which at various times in the ages



A PICTURESQUE STREET IN ST. PIERRE BEFORE ITS DESTRUCTION.

of the past have poured out cubic miles of their contents to become the habitation of man.

MONT PELEE'S WRATH.

The largest of these is Mont Pelee, a little more than 4,000 feet in height. Its crater has not been cool within the memory of man. In 1851 it underwent a violent eruption, and the violence of the subterranean forces shook every part of the island from its foundations to its mountain summits. Previous to that, in

1727, there was what a historian describes as a "dreadful earthquake, lasting hours," but he does not state the loss of life, if there was any. In 1767, however, an earthquake is briefly recorded that resulted in the loss of 16,000 human lives. In 1772 there was another earthquake that destroyed the island's fortifications.

In 1839 the then capital, Fort Royal, now known as Fort de France, was visited by an earthquake, which destroyed about half the town, caused damage throughout the island and killed some seven hundred persons. Mont Pelee has had several dead craters. One of these is thus described: "The water was perfectly clear. At the bottom there was a shallow layer of mud of a yellowish color. This mud rested on a mass of pumice stone, mixed in places with ferruginous sand. The mud itself was a detritus of pumice stone. The average depth of the water was about four feet. It was comparatively warm, and had a fresh, dewy taste."

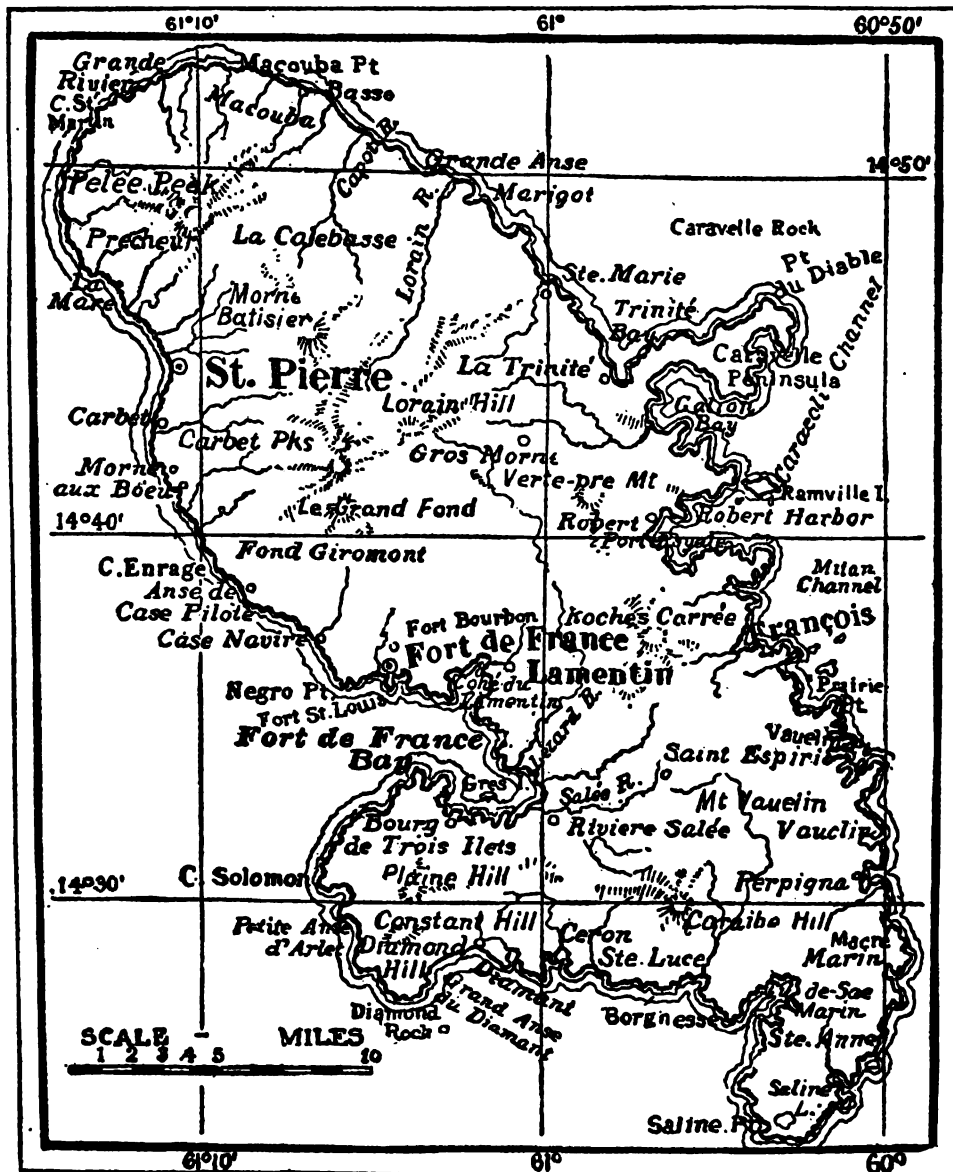
Mont Pelee, which was cultivated in spots up to a height of 2,500 feet, was covered to a large extent with dense forests containing a wonderful variety of woods, oaks, cedars, mahogany, silk-cotton, ironwood, and palms.

THE PROMINENT TOWNS.

St. Pierre was the principal commercial town because of its superior anchorage for ships. Fort Royal or Fort de France is the capital, although it is a much smaller town. St. Pierre lay along a low shore extending inland five or six blocks until it abutted against the steep slope of a mountain. It extended along the shore for nearly five miles. About the middle of the town was the opening of a gorge which separated two mountains, both dotted with fields of sugar cane, and apparently as solid and as harmless as the Green Mountains of Vermont. Both were volcanoes in their day, but nature found a more convenient safety valve in Mont Pelee, which lies immediately back of these.

The crater of Mont Pelee had been wearing its "smoke cap" since May 3d, but there was nothing until May 5th to indicate that there was the slightest danger. On that day a stream of boiling lava burst through the top of the crater, plunged into the valley of

the river Blanche, overwhelming the Guerin sugar works and killing twenty-three work people and the son of the proprietor.



MAP SHOWING THE ISLAND OF MARTINIQUE.

A commission was appointed by the governor to investigate the outbreak, and it returned a reassuring report on Wednesday evening.

STORY OF ANNIHILATION.

Thursday morning, May 8, 1902, dawned in splendor on this island and its people. The beautiful city of St. Pierre awakened all unconscious of the impending calamity which, in a moment, was to wipe it out of existence with scarce two score survivors to tell the awful tale of its destruction.

The distance from the volcano to the sea is three miles, and to the town is five miles. Several hills and ravines lie between the town and the mountain, which, had the explosion occurred in the cone, would have partly saved the former. The vast fields of hot lava which were boiling in the base of Pelee for years were acted upon by an inlet of water.

This, no doubt, came through a crevice from the sea. The French cable company reported nearly a fortnight ago that the sea floor at Martinique had dropped over one thousand feet. A break in the earth's crust must have resulted. Through this the sea waves passed. Coming in contact with the lava bed, an immense amount of steam was generated.

Soon it became heated to an intensity of five or six tons' pressure to the square inch. It is almost impossible to conceive its latent force. The area which confined it could not hold the increasing volume. It sought an outlet. The cap over the summit of the crater proved too strong. It attacked the weakest side, which was adjacent to the town. This side of the mountain was unable to withstand the strain and blew out.

As long as it takes a projectile to shoot through the air and drop to earth, just so long it took the fierce, red-hot stream of molten rock and sheets of flame to fall upon the town.

The full story of the annihilation of St. Pierre can never be told in detail. From the lips of the survivors has come the little the world can ever know of it. The most accurate and the fullest has come from Harvira Da Ifrile, a native girl, one of the thirty sur-

vivors rescued by the French cruiser Suchet. We tell the story in her own words, which follow:

"I was going to vespers at the cathedral when mother asked me to go up to my aunt's, who keeps a small pastry shop near the cemetery, to deliver her a message. The cemetery, you see, is half up the mountain, just where it turns below what we girls used to call the 'corkscrew,' an old crater which had a winding path, down which we used to lead visitors to the island.

"The other girls did not want to go, because they thought I could not run up there and be down at the cathedral in time, but I hurried. When I got to the 'corkscrew' I saw some puffs of smoke coming out of it, and only thinking it was some 'vielle' (aged negro) lighting a fire, I did not go to look. I had hardly gone more than three steps when I felt a hot wind from the 'corkscrew.' Thinking that something must be on fire, I ran to the top of the path, and there I saw the bottom of the pit all red, like boiling, with little blue flames shooting up from it. There were two guides leading a woman up the path and hurrying as fast as they could run. I saw a puff of blue smoke seem to hit the party and they fell as if killed.

SAW LAVA COVER PARTY.

"Horror-stricken, I stayed a minute or two till I saw the boiling stuff creep up the side of the 'corkscrew' until it covered the three people who were lying there. I got frightened then and ran down the road as fast as I could run, screaming all the way. I couldn't see anybody on the streets, and I was too frightened to stop and tell anybody. I think they must all have been at the cathedral, as it was the vigil of Ascension.

"Just as I got to the main street I saw this boiling stuff burst from the top of the 'corkscrew' and run down the side of the hill. It followed the road first, but then, as the stream got bigger, it eat up the houses both sides of the road. Then I saw that a boiling red river was coming from another part of the hill and cutting off the escape of the people who were running out of the houses.

"I ran as hard as I could to the beach and saw my brother's boat with sail set close to the stone wharf where he always kept it.

I jumped in it, and just as I did so I saw him run down toward me. But he was too late, and I heard him scream as the stream first touched and then swallowed him. I cut the rope that held the boat and went to an old cave about a quarter of a mile away, where we girls used to play pirates, but before I got there I looked back and the whole side of the mountain which was near the town seemed to open and boil down on the screaming thousands. I was burned a good deal by stones and ashes that came flying about the boat, but I got into the cave.

A GREAT TIDAL WAVE.

"I remember hearing an awful hiss as the boiling stuff struck the sea; and the cave, which was generally dry, filled up to the top with water, and I do not remember any more until they picked me up two miles at sea and I found myself on the big steamer."

The officers of the *Suchet* say the girl was found unconscious in the sailing boat, which was badly charred and drifting helplessly, the mast and sail having been snapped off. It is thought the boat was too light to be swamped by the tidal wave.

The twenty-nine others who were saved by the *Suchet* tell much the same story, but they did not see the first signs of the explosion. With one exception all the survivors were working close to the sea when the eruption began and had two full minutes to get away from the shore before, as the girl said, "the mountain opened its side and boiled down" upon the town.

The awful calamity that destroyed St. Pierre staggers the imagination. The mind fails to grasp the full meaning of the fact that a city of 35,000 people was wiped out of existence with the awful suddenness of a lightning stroke. The ruin was as complete as it was sudden. The disaster reminds one, in its completeness, of the fate of Pompeii and Herculaneum. It takes rank in awful destruction of life with the greatest calamities of modern times.

OTHER PLACES LOST.

Besides St. Pierre the towns of Le Precheur, three and a half miles northwest, and Manceau were entirely destroyed. Le Precheur had a population of between 3,500 and 4,000. Manceau was smaller.

These towns were properly suburbs of St. Pierre, although they had separate municipal organizations. They were situated at the foot of the mountains, and many of the inhabitants saved themselves by taking to the high ground. Their escape was practically shut off by the sea of lava. The towns are now desolate.

SAVED AS BY MIRACLE.

One of the beautiful little suburbs of St. Pierre was saved. Around a promontory at the southern edges nestles the little village of Carbet, a pretty town of some four to six thousand people. And not one of them was hurt, the town having been screened by a high ridge which lay between it and St. Pierre.

Another eye-witness, first mate of the *Roraima*, thus describes the disaster at St. Pierre:

SOME FIFTEEN VESSELS DESTROYED.

"About 7:50 o'clock in the morning on Thursday, without warning, there came a sort of whirlwind of steam, boiling mud and fire, which suddenly swept the city and the roadstead. There were some fifteen vessels anchored in the harbor, including the *Roraima*, the French sailing ship *Tamayia*, four larger sailing ships and five others. All five vessels were immediately destroyed. All the boats except the *Roraima* sank instantly. The *Roraima* had on board the captain, crew and a few passengers. Captain Muggah showed great heroism in trying to save the lives of the passengers, which he failed in doing, except that of one little girl. In doing this, even, he sacrificed his own life.

"Every house ashore was utterly destroyed and apparently burned under the ashes and molten lava. An officer who was sent ashore as soon as possible penetrated but a short distance into the city. He found only a few walls standing and the streets literally paved with corpses. The governor of the island, M. L. Mouttet, who had arrived only a few hours before the catastrophe, was killed. Both the English and American consuls with their families perished. It is certain that no more than thirty or forty out of the population of 35,000 could have escaped."

HISTORY OUTDONE.

In the magnitude of the disaster which overwhelmed St. Pierre and fairly threatened the whole Island of Martinique, we find history outdone. We had read with bated breath of Nature's ancient throes, when whole cities were buried beneath the lava flood or engulfed by the waves of the sea, and had wondered if those who penned these descriptions had not brought some of the exaggerations of mythological romance to color their theme. But now in our own day we find volcanic wrath sweeping a whole city into eternity, not in the course of days, when repeated warnings have given many the opportunity to flee; not even as a matter of hours, with at least a little respite wherein the doomed may take their farewell of earth and make such preparation as they may for the future—no, it was but the work of minutes for death to garner 40,000 victims amidst scenes that are described by horror-stricken witnesses, preserved by distance from sinking with the ships that held them, as "glimpses of hell." The flames of the inferno that the old world carries in her dark bosom triumphed like the passions of man and bent downward from the summit of Mont Pelee to enwrap and consume the sacrificial hetacombs of humanity so helpless before the vastness of Nature's wrath. Mist and smoke lent the ghastly shadow of an unwonted night to wrap the swift and widespread horror within its folds.

When Pompeii was overcome by the eruption of Vesuvius, streams of lava poured down the side of the mountain upon the unfortunate town. There was chance for some to escape. When St. Pierre, in the little West India Island of Martinique, was overcome, it was not by streams of molten earth flowing down the surface, but by a rain of fire, belched out from Pelee's height and precipitated upon the town as if from the sky. This makes the Martinique disaster even more terrible than that of Pompeii. There seems to have been no chance for escape at St. Pierre, even vessels in the harbor, with one exception, being unable to get away from the fiery bombardment from above. The people were pelted with fire; they were, almost in an instant, surrounded by a hail of molten matter. Those who had taken refuge in the houses no doubt suf-



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LIGHTHOUSE AND WHARVES AT ST. PIERRE, SHOWING THE COMMERCIAL INDUSTRY OF MARTINIQUE TO BE LARGE.

The principal exports are sugar cane, tapioca, wine, coffee and extracts.



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CATHEDRAL AT ST. PIERRE.

**This church had the largest number of communicants of any on the island.
Three thousand people fled here for safety, but all were destroyed.**

ferred intensely before death relieved them; any who may have been outside are not likely to have survived long after the storm of fire commenced.

GREATEST CALAMITY IN THE WESTERN HEMISPHERE.

The disaster at Martinique easily ranks as the greatest calamity in the history of the western hemisphere.



SHIPPING OF SUGAR IN ST. PIERRE BEFORE ITS DESTRUCTION.

In the presence of such a catastrophe one cannot but feel that there are elemental forces in Nature beyond the control of man. Science has made great strides, and we are wont to boast of her achievements. But, as Horatio said, there are many things in Heaven and on earth that we know not of, and earthquakes and volcanoes are among them.

The first ship to perish in the disaster was the cable repair ship

Grappler, belonging to the West India and Panama Telegraph Company of London. The steamer Roddam escaped destruction by the fact that she had on a full pressure of steam and was able to run out of the harbor. When entering the harbor of St. Thomas some hours later she carried the news of the disaster. The vessel itself bore silent witness to the terrible calamity. It was battered by pieces of white hot lava, her rigging was burned off, her captain severely burned, and seventeen of her crew were dead. The purser and ten of the crew lost their lives by jumping overboard while in the harbor at St. Pierre.

HEROIC CAPTAIN.

When the full story of the St. Pierre disaster shall have been told there will, no doubt, be many names added to the role of heroes. Already one such looms up from the smoke and destruction of the scene—the captain of the Roddam. He had cast anchor at St. Pierre just before the burst of fire that destroyed the place. The agent had come out to consult with him and was talking with him from a small boat when the shower of fire began. That was literally a rain of flame; it burned men to death on the deck and obliterated everything on the ship that fire and stones could destroy.

That was an emergency of a kind for which no sea captain was ever trained, but the captain of the Roddam was equal to it. His English brain asserted itself, and in that awful moment he acted as coolly as though such a storm of fire were a common thing in his experience. The anchor was cast off on his order and to the engine-room a message was quickly sent directing the engineer to back the engine.

Slowly the vessel, torn and dismantled, with dying men writhing upon her deck, began to creep away, the captain holding the wheel to guide her in her effort to escape from the hail of death. The burning cinders rained upon him, blistering his hands, but he did not flinch. There was refuge below from the fire that was beating upon the exposed deck, but he did not stir. Though he was in danger of being incinerated like the members of the crew

that lay about the deck, he held fast to the wheel and guided the vessel away from the awful scene.

VESSELS LOST.

The following is as complete a list of the vessels lost in the harbor of St. Pierre, Martinique, by the eruption of Mont Pelee, as can be obtained:

Albanese, Italian bark, Captain Albanese, 327 tons; sailed from Marseilles on February 20, arrived at St. Pierre on April 5; \$30,000.

Anna E. J. Morse, American schooner, 651 tons, Captain Crocker; sailed from Philadelphia March 24, arrived at St. Pierre April 24, bound for Port of Spain and New York; \$25,000.

Marie Helene, French bark, Captain Arnaud, 344 tons; sailed from Bordeaux April 10, bound for Martinique, sighted off Point de Grave April 14; \$30,000.

L. W. Norton, British bark, Captain Parks, 464 tons; sailed from New York April 12, arrived at St. Pierre April 30; \$35,000.

Misti, French bark, Captain Grado, 312 tons; sailed from Bordeaux February 20, arrived at St. Pierre April 4; \$10,000.

Nord America, Italian bark, Captain Cilento, 558 tons; sailed from Marseilles February 6, arrived at St. Pierre April 7; \$7,500.

Orsolina, Italian bark, Captain Leboff, 590 tons; sailed from Barbados April 1; \$30,000.

Peppo, Italian bark, Captain Lariello, 595 tons; sailed from Havre March 2, arrived at St. Pierre April 8; \$12,000.

Roraima, British steamship, Captain Muggah, 1,764 tons; sailed from New York April 26, arrived at St. Pierre and was destroyed; vessel, \$75,000; cargo, \$150,000; crew, 35; 8 saved.

Sacro Cuore, Italian bark, Captain Easano, 558 tons; sailed from Marseilles March 13, bound for St. Pierre; \$35,000.

Smart, Norwegian bark, Captain Aasen, 384 tons; sailed from Barbados January 20, bound for St. Pierre, and may have been destroyed there; \$12,000.

Taiwan, Italian bark, Captain Schiaffino, 307 tons; sailed from Marseilles April 18, bound for St. Pierre, and may have been destroyed there; \$40,000.

Teresa Lo Vico, Italian bark, Captain Ferrara, 563 tons; sailed from Havre February 12, arrived at St. Pierre April 3; \$15,000.

Besides the above there were lost the Leonardi, in command of Captain Scarpati; Dag, Captain Mathiasen; Adelaide, Captain Garel; Clemintina, Captain Mancino; Concettino, Captain Cacau; Sevre, Captain Callier.

Total value of vessels lost, not including the Grappler, \$531,000.

The streams of fire that destroyed St. Pierre came from the side of the mountain, which opened and closed, leaving large and very deep crevices near Macuba and Grand Riviere. The sea during the catastrophe withdrew several hundred feet, coming back steaming with fury. The officers in charge of a boat making soundings off the island report a depth of 4,000 feet where formerly it was only 600 to the bottom. Pumice stone and ashes covered the sea for many miles.

WORK OF THE SUCHET.

During the day following the eruption the heat in the vicinity of St. Pierre was so intense and the stream of flowing lava was so unrelenting that it was impossible to approach the town. As evening came on the French cruiser Suchet, after a heroic battle with the heat, suffocation and sulphur fumes, succeeded in making a dash toward the shore, nearing the land enough for her to take off the survivors of the disaster, all of whom were horribly burned and mutilated.

They were unable, however, to penetrate into the city.

From the wharf where they landed a large number of dead bodies could be seen. The royal mail steamer Esk attempted to reach St. Pierre, but was unable to do so, as the city was blazing. She sent a boat ashore, but the crew did not see a living soul. The darkness, where unrelieved by the burning city, was impenetrable.

For two days after the eruption the sea was still a boiling caldron, and about St. Pierre for a distance of eight miles landward the intense heat from the volcano and the bed of hot ashes rendered it impossible to enter the town by land. But as approach became possible, the work of searching for friends began. Then it was that the extent of the calamity became known to the world.

IN MONILLAGE, THE LOWER TOWN.

The town was a mass of indescribable ruins, which bore a striking resemblance to those of Pompeii. In the lower part of the town, called the Monillage, the outlines of the streets could be determined and here and there were walls of houses, which still stood erect but battered and crushed on all sides. Amid the hopeless labyrinth of debris one was able to pick out the sites of the club, the bank, the bourse, the telegraph office and the principal shops.

Everywhere was the same scene of utter desolation and death. At the police station there was a large pile of bodies lying face downward as if the victims had fallen while in the act of running to escape the fate impending over them.

The fort and central quarters of the town were razed to the ground and were replaced by beds of hot cinders. The iron grille work gate of the government offices was alone standing. There was no trace of the streets. Huge heaps of smoking ashes were to be seen on all sides.

BODIES HORRIBLY MUTILATED.

At the landing place some burned and ruined walls indicated the spot where the Custom House formerly stood, and traces of the larger shops could be seen. In that neighborhood hundreds of corpses were found lying in all kinds of attitudes, showing that the victims had met death as if by a lightning stroke. Every vestige of clothing was burned away from the charred bodies, and in many cases the abdomens had been burst open by the intense heat. Curiously enough, the features of the dead were generally calm and reposeful, though in some cases terrible fright and agony were depicted. Grim piles of bodies were stacked everywhere, showing that death had stricken them while the crowds were vainly seeking escape from the fiery deluge. On one spot a group of nine children were found locked in each other's arms.

Most gruesome sights were at every side. The smoking waste of St. Pierre contained 30,000 corpses; most of these were naked and frightfully mutilated, while from the rapid decomposition of

the bodies arose a terrible stench. On May 13 Mont Pelee was still in a state of eruption, but the winds were southerly and the smoke and ashes thrown out bore away to the north. This somewhat relieved the working force and made the examination of the ruins more possible.

A correspondent of the New York Sun made a trip through the ruined city and through the adjacent villages with the searching party organized by Signor Paravicino, the Italian consul at Barbados, whose daughter was visiting there and who perished in the disaster. When the body was recovered there was some doubt at first concerning the identity, but this was set at rest by relatives and friends identifying the clothing. This was an example of the curious effects of the fire that swept over the town, bodies being burned beyond all recognition, but clothing of flimsy material being little damaged.

CURIOUS FREAKS OF FORCE.

Other incidents showing the curious freaks of the destructive forces are related by this correspondent, who says: To the stupefaction of those familiar with the spot, the town clock remained intact, as if to show the precise moment of the disaster, marking 7:50, and this sinister indication deeply affected all who saw it. On the other hand, the telegraph office and its contents were burned. Some fragments of the apparatus were thrown a hundred yards. On the site where once stood a beautiful cathedral, stands now only a portion of its tower. The large bell lies in the center of the ruins. The greater part of the altar was destroyed, but the golden chalices were undamaged. In one large chalice was the ashes of what had been the Host. A small chalice remained full of wafers, not one of which was even scorched.

A large statue of the Virgin on the hill above St. Pierre was hurled yards distant from its base.

This, together with the fact that huge trees were torn up by their roots and laid flat, scarce one being left standing, and other indications show that the wave of fire must have passed over this section of the island at extreme hurricane velocity.

The only living thing seen by him in this district was an ox, thin as a skeleton. While the body of Signorina Paravicino was being prepared for removal this animal stalked slowly through the wreckage to the beach, where it drank sea water and then went back up the hillside.

An inhabitant of Morne Rouge, a town of 600 inhabitants, three miles from St. Pierre, who was watching the volcano at the moment of the catastrophe, says that there were seven luminous points on the volcano's sides just before it burst.

He says that all about him when the explosion came there was a terrible suction of air, which seemed to be dragging him irresistibly toward the mountain in spite of all his resistance. The volcano then emitted a sheet of flame which swept down toward St. Pierre. There was no sharp, distinct roar of explosion as when a great cannon is fired, but only awful jarring rumblings.

He thinks that the entire outburst that did all the work of havoc did not last more than thirty seconds.

Then there was complete darkness for ten minutes, caused by the dense volumes of sulphurous smoke and clouds of dust and shattered rocks, by which the entire country all about St. Pierre was turned into a chaotic waste. All the trees were either torn up by the roots or snapped off and lie level with the ground.

A few trunks of trees still standing show that the wave of fire stopped about two hundred metres from the suburb of Carbet. The houses are almost all destroyed in that place.

SUFFOCATED BY GAS.

It is supposed that an enormous puff of gas produced a great atmospheric pressure.

The formation of sulphuretted hydrogen gas doubtless caused thousands to die of sheer suffocation before the fire itself reached them. This explains the condition of the bodies, which are covered with superficial swellings and superficial burns caused by the great cloud of fire which followed the first gust of gas from the volcano.

After this there came a shower of stones, some as large as

apples and consisting of pumice stone. Certain bodies showed the marks of wounds produced by this awful hail of rocks.

All the dead were covered by a layer of ashes ranging in depth from a few inches to a foot or more.

STORY OF A PRISONER.

Baoul Sarteret, a prisoner who was found semi-suffocated but still alive in the dungeon of the city prison of St. Pierre, recovered sufficiently to describe what he could see of the eruption and the destruction of the town from the small grated window which was the only opening in his cell. His story is as follows:

"I was just eating my breakfast that morning," he said, "when the rumbling which I had heard beneath my cell for three or four days previously stopped suddenly. I do not know why, but I felt frightened, as though something fearful were to happen. Then the whole place became black, a sort of violet black, and I heard screams all through the prison.

"I could not help feeling that there was a disaster near and I screamed to the jailers to come and unlock my cell, but I could not make any one hear. The little window in my cell looked out on the back of the convent, where 200 girls and a large number of nuns frequently stayed, but there was a high wall between my cell and the convent.

"The violet darkness grew blacker and blacker until it was almost as dark as though it were night, and then suddenly the whole place was lighted up with a curious glow, sometimes red, sometimes green, but generally red. I put my little table against the cell window and, hanging on by the bars, attempted to look out, but could not see anything because of the brick wall in front of me.

"While I looked, however, a huge red-hot stone crashed down just in front of my window, right on the top of the wall, knocking it down. The heat from this stone was most intense and made my post at the window fearful to endure, but the sight was such that I could not turn away.

"Right in front of me where the brick wall had stood I saw the large convent, and I could see that molten matter had come down

the hill and had run into the grounds of the convent. I realized then that there must have been an eruption of Mont Pelee. To my horror I discovered that the lava had completely encircled the convent with its first rush and that all the girls and sisters who were in the building were doomed.

"While I looked I saw another stone, even larger than the one which had fallen near my cell window and broken down the wall, strike on the convent roof and crash through its three stories, evidently plunging through to the ground. I had not seen any of the sisters until that time, and I suppose they had depended for safety on the building, seeking shelter from the rain of hot ashes which I could see falling.

DESTRUCTION OF THE CONVENT.

"In an instant after this huge stone crashed through I saw the poor girls flocking out in the utmost terror. Their actions looked as though they were screaming in an agony of fright, but I could not hear a sound owing to the hissing of the lava and the roar of the volcanic discharge. As the girls came running out I saw that they carried with them bodies of those who had been injured by the crashing of the stone through the building. Some they carried out were dead, while I could see that others were only injured.

"The sisters came running out, too, bringing appliances for helping the injured, but those who had hurried out of the building were driven in again by the blinding ashes and the fumes which I could see rise from the lava.

"A pit had been dug on the inside of the wall in order that none of the girls should be able to climb up from the inside, and this acted as a sort of moat, in which the lava floated, and thus made a complete circle round the convent, rendering escape impossible, even if it had been possible to live in the rain of hot stones and ashes from the mountain.

"Again as I looked I saw another stone fall upon the building, and this time many more of the girls rushed out. This time there were far fewer. A party of them broke down one of the doors, and

holding this over their heads they tried to run for the gate, but were amazed to find their escape cut off by the river of lava.

"The lava gradually rose and rose, and I could see the huddled group of girls growing smaller and smaller, as first one and then others succumbed to the poisonous fumes and the fearful heat of the surrounding lava. And as the group got smaller the lava rose and rose, until there was but a small piece of land around the building where the ground was not a heaving, swelling mass of molten matter.

"Then with one great burst, it seemed to me, a fresh stream of lava flowed into the moat and overswept the building and the little island on which the girls were standing a moment before. I turned away my eyes in horror, and when next I looked nothing was to be seen of the convent but a heap of calcined stone, and here and there the blackened corpses of those who but a few moments before had been full of life and hope.

"I could not see what was happening in the town for the reason that the window of my cell was so small and besides there was a pall of blackness over all the scene. I could, however, see here and there as the smoke lifted, that the lava had extended clear down to the sea and that but a few of the larger buildings had successfully withstood the attack of the volcanic eruption.

"While I was looking from my cell window, my eyes almost seared out of my head by the heat pouring through the narrow orifice, I noticed a thin blue smoke curl along the ground, and, caught by some eddying gust of wind, the fumes struck straight into my cell window and I remember no more."

STORY OF ANOTHER EYE-WITNESS.

Another interesting story of the fury of the volcanic eruption is told by M. Albert, owner and manager of the Lagarrane estate near St. Pierre, in which he tells of his marvelous escape with his family from the terrible death that swept St. Pierre out of existence. He says:

"Mont Pelee had given warning of the destruction that was to come, but we who had looked upon the volcano as harmless did not

believe that it would do more than spout fire and steam, as it had done on other occasions. It was a little before 8 o'clock on the morning of May 8 that the end came.

"I was in one of the fields of my estate when the ground trembled under my feet, not as it does when the earth quakes, but as though a terrible struggle was going on within the mountain. A terror came upon me, but I could not explain my fear.

"As I stood still, Mont Pelee seemed to shudder and a moaning sound issued from its crater. It was quite dark, the sun being obscured by ashes and fine volcanic dust. The air was dead about me, so dead that the floating dust seemingly was not disturbed.

"Then there was a rending, crashing, grinding noise, which I can only describe as sounding as though every bit of machinery in the world had suddenly broken down. It was deafening, and the flash of light that accompanied it was blinding, more so than any lightning I have ever seen.

"It was like a terrible hurricane, and where a fraction of a second before there had been a perfect calm I felt myself drawn into a vortex and I had to brace myself firmly. It was like a great express train rushing by, and I was drawn by its force.

LEVELED TREES.

"The mysterious force leveled a row of strong trees, tearing them up by the roots and leaving bare a space of ground fifteen yards wide and more than one hundred yards long.

"Transfixed I stood, not knowing in what direction to flee. I looked toward Mont Pelee, and above its apex formed a great black cloud which reached high in the air. It literally fell upon the city of St. Pierre. It moved with a rapidity that made it impossible for anything to escape it.

"From the cloud came explosions that sounded as though all of the navies of the world were in titanic combat. Lightning played in and out in broad forks, the result being that intense darkness was followed by light that seemed to be of magnifying power.

"That St. Pierre was doomed I knew, but I was prevented from seeing the destruction by a spur of the hill that shut off the view of the city.

"It is impossible for me to tell how long I stood there inert. Probably it was only a few seconds, but so vivid were my impressions that it now seems as though I stood as a spectator for many minutes.

"When I recovered possession of my senses I ran to my house and collected the members of the family, all of whom were panic-stricken. I hurried them to the seashore, where we boarded a small steamship, in which we made the trip in safety to Fort de France.

"I know that there was no flame in the first wave that was sent down upon St. Pierre. It was a heavy gas, like firedamp, and it must have asphyxiated the inhabitants before they were touched by the fire, which quickly followed. As we drew out to sea in the small steamship *Mont Pelee* was in the throes of a terrible convulsion. New craters seemed to be opening all about the summit and lava was flowing in broad streams in every direction. My estate was ruined while we were still in sight of it.

"Many women who have lived in St. Pierre escaped only to know that they were left widowed and childless. This is because many of the wealthier men sent their wives away, while they remained in St. Pierre to attend to their business affairs."

RECALLS LORD LYTTON'S DESCRIPTION OF VESUVIUS.

The Martinique catastrophe recalls Bulwer-Lytton's description of the destruction of Pompeii in his "Last Days of Pompeii," to which is given renewed interest by the recent disaster of St. Pierre. The author's words are as follows:

"The cloud which had scattered so deep a murkiness over the day had now settled into a solid and impenetrable mass. It resembled less even the thickest gloom of a night in the open air than the close and blind darkness of some narrow room. But in proportion as the blackness gathered did the lightnings around Vesuvius increase in the vivid and searching glare.

"Nor was their horrible beauty confined to the usual flashes of fire; no rainbow ever rivaled their varying and prodigal dyes; now brightly blue as the most azure depth of a southern sky; now a lurid and snakelike green, darting restlessly to and fro as the

folds of an enormous serpent; now of a lurid and intolerable crimson, gushing forth through the columns of smoke far and wide, and lighting up the whole city from arch to arch, then suddenly dying into a sickly paleness, like the ghost of their own life.

"In the pauses of the showers Gan heard the rumbling of the earth beneath and the roaring waves of the tortured sea, the grinding and hissing murmurs of the escaping gases through the chasms of the distant mountain. Sometimes the cloud appeared to break from its solid mass, and, by the lightning, to assume quaint and vast mimeries of human or of monster shape, striding across the gloom, hurtling one upon the other, and vanishing swiftly into the abyss of shade, so that, to the eyes and fancies of the affrighted wanderers, the unsubstantial vapors were as the bodily forms of gigantic foes—the agents of terror and of death.

ASHES KNEE DEEP.

"The ashes in many places were already knee deep, and the boiling showers which came from the steaming breath of the volcano forced their way into the houses, bearing with them a strong and suffocating vapor. Immense fragments of rock, hurled upon the house roofs, bore along the streets masses of confined ruin.

"The winds and showers came to a sudden pause; the atmosphere was profoundly stale; the mountain seemed at rest, gathering, perhaps, fresh fury for its next burst. * * * Suddenly, as he spoke, the place became lighted with an intense and lurid glow. Bright and gigantic through the darkness which closed around it, like the walls of hell, the mountain shone—a pile of fire. The summit seemed riven in two, or above the surface there seemed to rise two monster shapes, each confronting each, as demons contending for a world. These were of one deep blood-red hue of fire, which lighted up the whole atmosphere, far and wide, but below the nether part of the mountain was still dark and shrouded, save in three places, adown which flamed serpentine and irregular rivers of the molten lava.

"Darkly red through the profound gloom of their banks they flowed slowly on as toward the devoted city. Over the broadest

there seemed to spring a cragged and stupendous arch, from which, as from the jaws of hell, gushed the source of sudden disasters, and through the stilled air was heard the rattling of the fragments of rock, hurtling one upon another as they were borne down the fiery cataracts—darkening for one instant the spot where they fell, and suffused the next in the burnished hues of the flood along which they floated.

“Glaucus turned in gratitude and caught Ione once more in his arms and fled along the street, that was yet intensely luminous. But suddenly a duller shade fell over the air. Instinctively he turned to the mountain, and, behold! one of the two gigantic crests into which the summit had been divided rocked and wavered to and fro, and then with a sound, the mightiness of which no language can describe, it fell from its burning base and rushed, an avalanche of fire, down the side of the mountain. At the same instant gushed forth a volume of blackest smoke, rolling on over air, sea and earth. Another, and another, and another shower of ashes, far more profuse than before, scattered fresh desolation along the streets. Darkness once more wrapped them as a veil.

“The sudden illumination, the bursts of the floods of lava and the earthquake, which we have already described, chanced when Sallust and his party had just gained the direct path leading from the city to the port, and here they were arrested by an immense throng—more than half the population of the city. They spread along the field without the walls, uncertain whither to fly. The sea had retired far from shore and they who had fled to it had been so terrified by the agitation and preternatural shrinking of the element, the gasping forms of the uncouth sea, which the waves had left upon the sand, and by the sound of the huge stones cast from the mountain into the deep, that they had returned again to the land, as presenting the less frightful aspect of the two.”

And thus, in this recent day, St. Pierre, beautiful, gay, thoughtless St. Pierre, was blotted out in one moment by that green-clad Mont Pelee that seemed merely to serve as a marvelous background for the sunlit, red-tiled houses of the town!

St. Pierre, that had laughed through hurricane and pestilence; where even the horrible smallpox plague failed to stop the grand

carnival of Mardi Gras—those doomed to die rising from their beds, hiding the hideous ravages of the disease behind their masks, to join in the wild dances and delirious mummary of the day.

“Nothing but glowing lava and flames everywhere, without a sign of life.” Never, since Pompeii fell, has there been such sudden desolation on such care-free people.

SUMMARY OF MARTINIQUE.

Discovered by Columbus, 1502.

Settled by French, 1635.

The island of Martinique is 1,710 miles from New York.

It is 50 miles from St. Lucia.

It is about 95 miles north of St. Vincent, now in eruption.

Dominica is 60 miles from St. Pierre. Guadeloupe is eight hours away.

St. Thomas is a day's sail distant. St. Kitts and Antigua twelve hours.

A fast steamer could touch at all the islands within thirty hours.

From the top of Mount Misery, in St. Kitts, half a dozen of the islands can be seen.

Mont Pelee is 4,430 feet high.

Martinique had a population of 189,599 at last census.

It contains about 80,000 acres.

Total area 380 square miles.

Rainfall, 150 inches annually.

St. Pierre had a population of 35,000.

St. Pierre had 20 sugar factories and 118 rum distilleries.

It is 45 miles long and 15 miles wide at its widest point.

Fort de France, the capital, has a population of 17,274 people.

The trip from St. Pierre to Fort de France takes just the time of a sail from Washington to River View.

There are 1,360 soldiers in Martinique.

There are 6,000 more women on the island of Martinique than there are men.

French is the official language.

Barbados is 100 miles from Martinique.

St. Pierre is about 10 miles from Fort de France.

St. Pierre is about 5 miles from Mont Pelee.

WHY MONT PELEE EXPLODED.

We give below Prof. Verrill's views on the subject. He says:

The fearful loss of life at Martinique and the suddenness of the destruction seem mysterious to most people, and are scarcely to be accounted for by any of the text books relating to volcanic phenomena.

But yet there appears to be a simple and scientific explanation of all that occurred there in those few fearful minutes. All geologists admit that the common cause of violent volcanic eruptions is the generation of steam at enormously high pressure by water coming in contact with very hot lava at great depths, and that the gases and "smoke" ejected are chiefly steam and cinders or ashes.

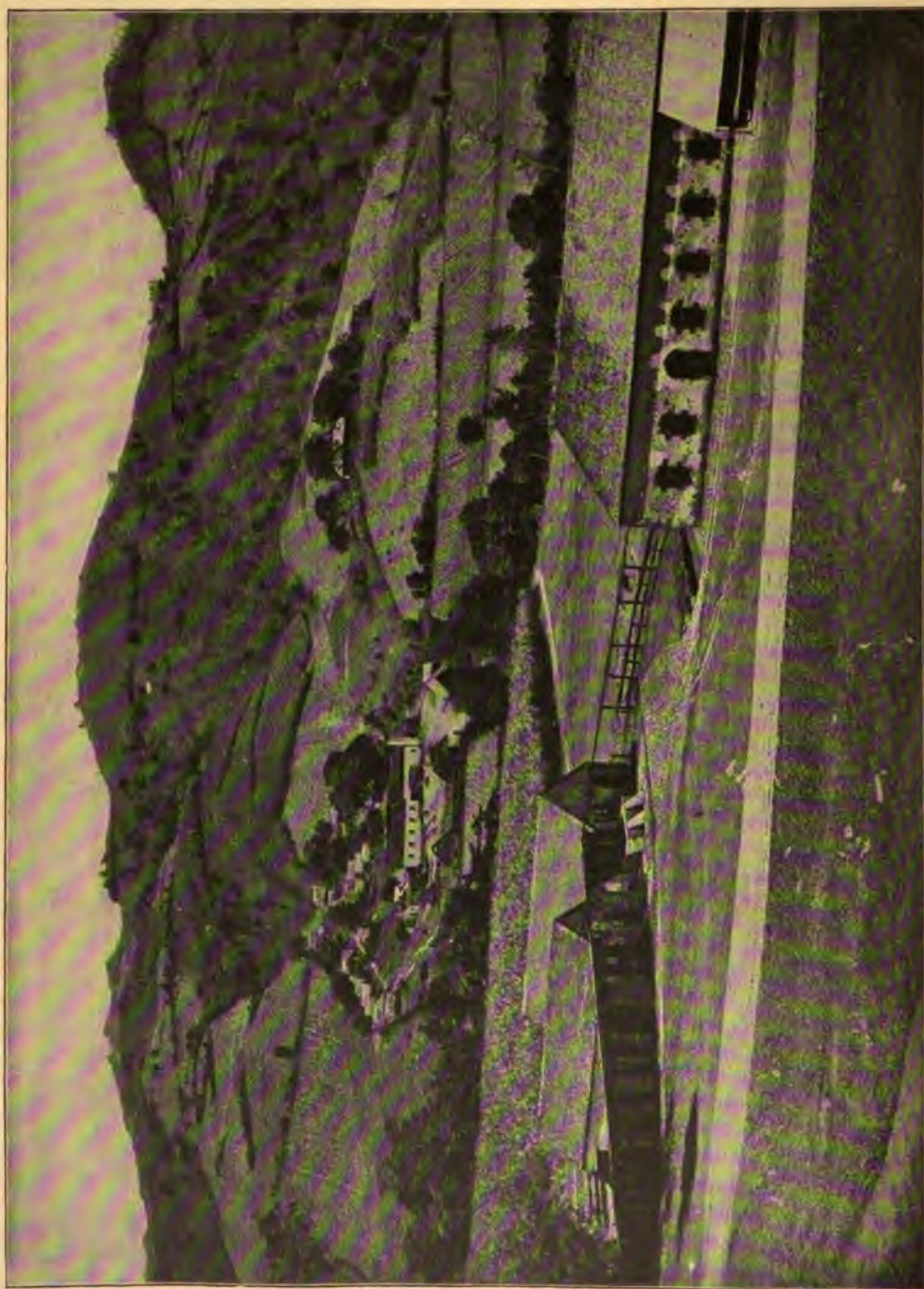
But the surviving eye witnesses of the volcanic eruption at Martinique speak of the "tornado of fire" which suddenly swept over the city and killed most of the people and instantly set on fire the buildings and shipping; and also of the suffocating vapors that immediately killed most of those that escaped the outburst of flame. This fire can be fully explained by the dissociation of the oxygen and hydrogen of the water that came in sudden contact with intensely heated lava within the volcano.

As it was probably sea water, the chlorine of the salt would also be separated as a gas. These gases, escaping with great violence and in vast volumes, mixed with steam, would eject the hot stones and cinders and then instantaneously explode in the open air, causing the intensely violent outburst of hot flames that swept down the mountain and over the town, for such a mixture of oxygen and hydrogen is among the most explosive of all known gases, and it produces an intense heat.

If chlorine were present, as was doubtless the case, it would also form an explosive mixture with the hydrogen, generating hydrochloric acid gas. This is an exceedingly suffocating gas—deadly if inhaled in any considerable amount. It is always produced when sea water comes in contact with highly heated lava deep within the crater of volcanoes near the sea.



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FIRST MISSION ON ISLAND OF MARTINIQUE, ST. PIERRE.



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PLANTATION OF CARBET, MARTINIQUE.

This plantation, the largest on the island, was entirely wiped out during the recent eruption of Mont Pelee. The crop growing at the time this picture was taken is the sugar cane. The buildings in the foreground are sugar mills.

The burned condition in which most of the dead and wounded were found, and the evidences of suffocation in other cases, prove conclusively that this separation and explosive reunion of the elements of sea water were the immediate causes of the "whirlwind of flame" and the sudden destruction of life. The vast explosive flame doubtless reached the city before the stones that were ejected by the same outburst of the gases could fall there. The same explosion of gases would also explain the mechanical violence observed in the ruins.

The writer, in teaching geology during many years, has always applied this explanation to other violent volcanic eruptions, like that of Krakatoa, in opposition to the text books, but the eruption at Martinique proves its correctness most completely. At Krakatoa no eye witnesses were left alive to tell what happened.

A similar explosive effect, on a small scale, is produced when a small quantity of water is thrown upon the very hot coals in a furnace. The hydrogen separates from the oxygen of the water and then explodes with an outburst of hot flames. Instances have occurred when terrible explosions have been produced by water accidentally getting into blast furnaces and other very hot furnaces.

In all such cases great volumes of hydrogen are liberated, and mixing with the air explode very violently, with the production of very hot flames. In a volcano the hot lava and the water are in unlimited quantities and under enormous pressures, far beyond any that can be produced artificially.

A. E. VERRILL,

Yale University, New Haven, May 24, 1902.

CHAPTER II.

THE ISLAND OF MARTINIQUE—ITS HISTORY, TOPOGRAPHY, VEGETATION AND INDUSTRIES.

The Most Picturesque of the West Indian Isles—Discovered by Columbus—Peculiar in Topography—Famous as the Home of Josephine—Startling Record of Great Disasters in the Island—Commercial Interests of the Island.

Many things combine to make the Island of Martinique, where the St. Pierre disaster occurred, more beautiful and more romantically interesting than any other of the West Indian islands. Its mountain scenery is more poetically beautiful, its towns more strikingly picturesque in architecture, and its population more varied and beautiful in color and type than anywhere else among the Windward islands. (See page 8.)

It is one of the West India group, making one of a chain of islands called the Lesser Antilles. It lies south of Dominica, and north of Saint Lucia, at about the center of the true Caribbees, a crescent of islands stretching north and south and enclosing on the east the Caribbean Sea. There are eleven islands in the group, the intervening distances between them being about thirty miles. Some are Danish, some English and some French, Martinique being one of the finest of the French possessions. The French colonies in America, as is well known, consist of Martinique and Guadeloupe, with their adjacent islands forming a part of the chain of small islands which stretches in a semi-circle southeastwardly from Porto Rico almost to the coast of South America. On the mainland of South America near the southern terminus of this semi-circle of islands just mentioned is another colony of France, French Guiana, while further north, just off the southern coast of Newfoundland, is the remainder of French colonial America, the islands of St. Pierre and Miquelon. At the time of the recent disaster it was one of the most densely populated regions of the world. In 1894, the time of the last official census, there were 189,599 people upon it, and the

number had increased rather than decreased since then. Of this number about 5,000 are laborers brought from India and over 5,000 laborers from Africa; also about 500 Chinese immigrants. The remainder of the population is largely native Negroes, the white population numbering in all about 10,000. A large share of the interior of the island has never been brought under cultivation, although it has been occupied by the French almost constantly since 1635, a period of 266 years, the only interruption in French control being the period from 1794 to 1802, when the island was held by the British. Slavery existed until 1848, when it was abolished in this as well as other French colonies. Notwithstanding the fact that a large part of its interior has never been brought under cultivation, this great population, averaging 500 people to the square mile, was really even more closely packed than the figures show, for the central parts of the island are mountainous, and in many places the virgin forests still stand. The arable lands have to support the entire population. The French-born number but 1,307. This is exclusive of the French garrison at Fort St. Louis, of the town of Fort de France, the soldiers numbering 1,360.

DISCOVERED BY COLUMBUS.

When Columbus discovered the island, June 15, 1502, it was inhabited by the Caribs, an interesting tribe of Indians, afterwards almost exterminated. Though it was discovered at this early date, it remained in disputed possession of the Caribs, saving a small French settlement made at St. Pierre in 1635.

In 1635, Esnambuc, a Norman captain, formally took possession of Martinique, which the French government purchased from his descendants, incorporating it as a royal colony in 1764.

Martinique forms a striking picture from the sea. In the north is a group of volcanic mountains. There is a similar group to the south. Between these is a line of lower heights, culminating in the noted Mont Pelee, towering 4,430 feet above the sea. The entire island, formerly called Madiana, is of volcanic formation and is known as one of the "wet" islands, owing to the amount of rain which annually falls—something like 150 inches. Its climate is

hot and hurricanes and earthquakes are not infrequent. The island has about 80,000 acres of very fertile land under cultivation. The total area is about 380 square miles.

Mont Pelee had deep and precipitous ravines, but they were not noticeable to the eye because of the beautiful drapery of the forest. From the sides of Pelee the visitor and habitant gazed at the inner Caribbean Sea and then into the vast sweep of the rolling Atlantic.

The whole area of the island is mountainous. Besides Mont Pelee, there are, further south and about midway of the oval, the three crests of Courbet, and all along the great ridge are the black and ragged cones of old volcanoes.

In the section south of the deep bay there are two less elevated and more irregular ridges, one running southeast and terminating in the Piton Vauclin, and the other extending westward and presenting to view on the coast Monts Caraibe and Constant.

The mountainous interior is torn and gashed with ancient earthquake upheavals, and there are perpendicular cliffs, deep clefts, and gorges, black holes filled with water, and swift torrents dashing over precipices and falling into caverns—in a word, all the fantastic savagery of volcanic scenery, but the whole covered with the rich verdure of the tropics.

THE HARBOR OF ST. PIERRE.

The principal city of Martinique was St. Pierre (pronounced San-Pe-Air), on the west coast of the island, near its northern end. It had a population of about 35,000. It had no harbor, only a slight depression in the shore, and no protection from the west, nor much from the north and south.

The city extended for a long distance along the shore. It had straight, narrow streets paved with stone blocks or macadam, with good sidewalks well covered with awnings. Up the slope to the mountain from the open harbor the streets of the city were cut in the rock. Sometimes they were so steep that instead of a roadway they were steps in the hillside, and always from the vantage point of a street crossing one could look down into the harbor over the

roofs of the houses built but a block below. The buildings were all two stories high, usually of masonry, and sometimes bound with iron in view of earthquakes. A primitive street railway ran through the principal thoroughfare. There were some well-stocked stores, but prices of everything were high, and the people, one and all, were shrewd in dealing with strangers. On the whole, for a tropical city of mostly colored population, the place bore evidence of considerable business activity. Except for the heat and the color of the inhabitants, one could quite fancy himself in a provincial city of old France.

There were no buildings of any architectural pretension. Even the cathedral, which, with its two white steeples, a conspicuous object seen from the sea, was very commonplace when seen from within. It is rather noticeable in all the West India islands that the fine arts have been little developed.

About 20 miles down the coast from St. Pierre is the smaller city, but capital of the island, Fort de France. It was formerly called Fort Royal, no doubt from its adjacent extensive fortification, but on the abolition of royalty in France its name was changed to the uncouth one it now bears. It is situated on a deeper and better protected bay than St. Pierre, and the country back of it is less mountainous, but otherwise the two places very much resembled each other. (See map page 33.)

TOPOGRAPHY OF ST. PIERRE.

The topography of St. Pierre was peculiar. Facing the sea, with no land protection whatever from tides, its harbor was not a safe refuge for ships in time of storm. The beach was so abrupt, nevertheless, that heavy draft steamships found it possible to go within fifteen or twenty yards of the shore, there transferring their cargoes to barges and lighters, which could steam up and down the mile or so of beach directly bounding the city. The buildings began within a few yards of high-tide points, and covered the land, in spite of very abrupt slope for nearly a mile inland. The River Blanche is about a mile and a half above the upper boundary of the city. This is the most important stream of the neighborhood, but it is not navigable.

Though small and far away in the waters of the tropics, Martinique felt the throbbing blood of the world. It not only received goods from the great empires, but sent much in return by which it was able to support its government, the functions of government and look after the welfare of its people.

FAMOUS AS THE HOME OF JOSEPHINE.

Historically the island is famous as the home of the Empress Josephine. Her father's sugar plantation was located not far from Fort de France, the capital of the island, and there she lived till almost grown, for a time in a palatial home, and after that was destroyed by a hurricane in the sugar-house of the plantation. The old house in which she was brought up is carefully preserved, though no longer used as a factory, for the people of Martinique are proud of their connection with the most stirring episodes and one of the most famous characters of French history, and the place is now preserved as a showhouse. But it differs in no respect from the other sugar houses in the vicinity, and but for the monumental inscription without and the collection of Josephine relics within, it might easily pass for an ordinary sugar house.

In truth, Martinique is the home of several famous women. Mme. de Maintenon was born in Martinique, her name as a girl being Françoise d'Aubigne.

Here, too, a Turkish sultana, Nachshedil, consort of Abdul Hamid I., was likewise born. Aimee Dubuc de Rivery was the maiden name of the latter woman, and it was through shipwreck, piracy and the slave market that she fell finally into the hands of the sultan's officers. On completion of her education in a convent at Nantes, France, at the age of eighteen, she embarked at Marseilles to return to Martinique. While en route the vessel was shipwrecked and crew and passengers were captured by an Algerian pirate who exposed the young girl for sale in the slave market at Algiers. She was purchased by the dey, who sent her as a present to the sultan. She became the mother of Mahmoud II., grandfather of the present sultan.

Josephine was not born on the soil of Martinique, but on one

of the three islands adjacent, called Trois Îlets. Josephine's father was an officer in the artillery. The aunt of Josephine lived in France. This aunt had been godmother to the second son of



JOSEPHINE'S MONUMENT.

Marquis de Beauharnais, formerly Governor of Martinique. At fifteen years of age Josephine was taken to France to marry this

son, negotiations having proceeded between the aunt and the marquis. Thus she was launched on that sad, stormy, checkered and brilliant career for which her name stands. She was the child of fortune, and we may say not less a soldier of fate than her two distinguished husbands.

On the Savane at Fort de France stands a beautiful marble statue of Josephine, surrounded by nine great palms, erected to her by Napoleon the Third.

Since the earthquake in the island in 1839 the houses in the official city, Fort de France, have been built of wood and are but one story high.

The many streams traversing the island, coming down from the heights, have furnished an abundant supply of pure water.

THE NATIVES OF MARTINIQUE.

The island has had a stormy career. Columbus found there, in the last decade of that century which made America a part of the known world, the Carib savages. So fierce were these Indians, so war-like, so active in defense of their homes, that for many years after the discovery the island remained in their possession. Then the French adventurers colonized it; the sea rovers and buccaneers, attracted by the beauty and fertility of the island. The Caribs were driven back from the coast lands to the mountain valleys, finally disappearing altogether. The French planters prospered, their estates covered the lowlands; their slaves, imported from Africa, multiplied to a great population; their prosperity attracted the attention of their enemies. During the long struggle for supremacy between France and England their colonial possessions suffered far more than the home countries. Finally, having already colonized or taken by force many of the Caribbean Islands, the English fell upon Martinique.

They took possession of it four times toward the end of the eighteenth century. A revolt of the blacks in 1853 was followed after some years by the extension of the franchises to all inhabitants of free birth, regardless of color.

The first English attack in 1759, which was led by General

Moore, was repulsed, but a second assault on Fort Royal, the principal defense of Martinique, was successful, and in 1762 the island passed into the possession of the English, but by a treaty of peace, signed on the 12th of February, 1763, Martinique, among other colonial possessions, was restored to France.

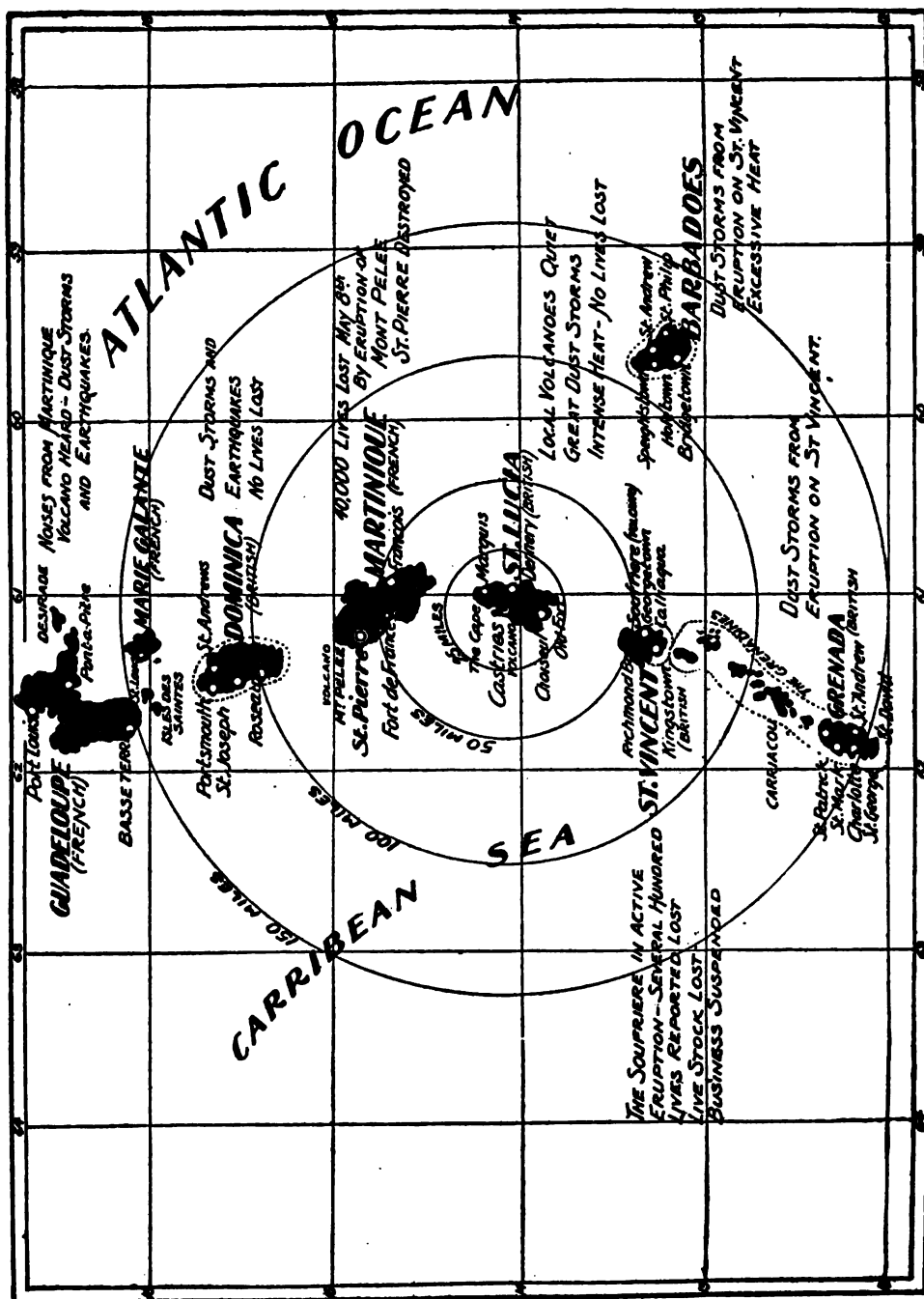
A warship brought the news of the restoration to Fort Royal, the final transfer of troops and the installation of the new governor took place in June, on the 23d of which month Josephine Tascher de La Pagerie, afterward Empress of the French, was born. And it was in all probability the birth and marriage of this French planter's child which has prevented Fort Royal from fading out of history, or the world at large from forgetting the neighboring city of St. Pierre.

The subsequent history of the island, though it is marked by social and political convulsions, and by brief, bloody wars, seems of little moment compared with the entrance into existence of this famous woman, whose life has influenced all European possessions.

GOVERNMENT OF MARTINIQUE.

The Government of Martinique consists of a local legislative body composed of natives which has the power to pass laws applicable to the exercise of political rights, the regulation of contracts, matters relating to wills, legacies and successions, the institution of juries, criminal procedure, recruiting for naval and military forces, and the methods of electing local officers in the cities and towns. The governor and other officers are appointed by the French Government, which also makes the tariff laws of the island, as is the case with reference to its other colonies. This and the other American colonies of France have, as already indicated, a much larger share of self-government than any other of her colonies, and are each represented by a senator and two deputies in the French legislative body corresponding to the Congress of the United States.

These large powers of self-government and of participation in national legislation are the subject of open criticism by French economic writers. Leroy Beaulieu, perhaps the most distinguished of French writers of the present day upon economic subjects, in his



The above chart shows the islands affected by the recent volcanic disturbance.

"Colonization Chez les Peuples Modernes," says: "As regards politics, we have introduced French liberty into our colonies; we give them civil governors, admit their representatives into our Parliament, and while all these reforms are excellent in themselves, it is, unfortunately, to be feared that they will in practice result in abuses, and that unless the mother country is very watchful those very powers which she has granted to her colonies will become powers of oppression. The deputies whom Martinique sent to our Parliament serve only to represent the malice, prejudice and ignorance of the blacks. The weak executive power in France allows itself to be intimidated by these deputies and sends out to the colonies cowardly and incapable governors, whose indecision of character feeds the more or less barbarous hopes of the native population of the island."

VIEWS OF AN ENGLISHMAN ON MARTINIQUE'S GOVERNMENT.

Sir Charles Dilke, the well-known British legislator and writer upon colonial governments, does not join in the pessimistic views which the French writers express regarding the experiments which the French have made in the encouragement of local self-government in their West Indian colonies. In his "Problems of Greater Britain" he says: "Some who think the negro unfitted for self-government point to Hayti; but they might reflect that in the French islands of Martinique and Guadeloupe power is in the hands of the colored people while the islands prosper. The experience, indeed, of those islands in which the negroes and 'colored' people have been entrusted with a large share in the government, and the use which they make of representative institutions, seem to show that their detractors are in the wrong. The friends of the negro are now able to point to the progress effected by the West Indian peasant proprietors, to the spread of education, to the undoubted rise in the standard of comfort, and to the prominent place already taken by individuals of the African race. The example of Martinique and Guadeloupe goes to show that it is time that we (the English) should make trial of a more liberal system. It is contended that where representatives of the people are elected by manhood suffrage, as is the case in the French islands of Martinique and Guadeloupe, the result has been

a recrudescence of race hatreds and the political subjugation of the whites to men of color. While we have a certain contempt for the French, considered as a colonizing people, every English writer on the subject admits that the French have been more successful in Martinique and Guadeloupe than we have been in similar and closely adjoining islands. Excellent results have been obtained by the French through their frankly accepting the principle that the colored race is better suited to the West Indies than is the white, and France has encouraged and helped the colored people to become dominant in the French islands. Meantime the trade of the two French islands, Martinique and Guadeloupe, is, roughly speaking, one-third that of all the British West Indies, vastly greater in size and population; and the British island of Dominica, which stands between the two French colonies, shows a lamentable contrast to their prosperity."

A RECORD OF DISASTERS.

The record of great disasters in the island is a startling one, and the destruction of St. Pierre stands only as the worst of a long series. Pestilence, fire, earthquake and hurricane have all contributed their terrors. The hurricane was the most dreaded of all, while the earthquake is so common that usually little attention is paid to it.

The earthquakes seem to have originated beneath Mont Pelee and are supposed to be due to the shifting of strata of rock in that locality. There are five volcanoes on the island, but all, like Mont Pelee, were supposed to be extinct, as since 1851 they had shown no activity.

Fort de France, the capital, has been three times damaged by earthquake and once by hurricane. In 1888 its population was decimated by smallpox, and in 1890 a fire destroyed half the buildings.

HARBOR HAS BEEN FAMOUS FOR YEARS.

The harbor at St. Pierre has been a famous one for centuries. It was off this harbor on April 12, 1782, that Admiral Rodney's

fleet defeated the French squadron under the Comte de Grasse and wrested the West Indies from France.

Martinique became an interesting point in this country during the recent war with Spain. The first news of the arrival of the Spanish fleet of Admiral Cervera came from St. Pierre. At 9:30 o'clock in the morning of May 11, 1898, the cruiser Harvard arrived at St. Pierre, and at 6 o'clock the same evening a correspondent at Fort de France communicated to the Harvard's commander the fact that the Spanish torpedo boat destroyer Furor had put into Fort de France. The destroyer turned out to be the Terror instead of the Furor, but the important fact that Cervera was on this side of the ocean was established.

SCENE OF THE STORY, "PAUL AND VIRGINIA."

Bernardin de St. Pierre made a voyage to Martinique in his youth and located the scenes of his famous story of "Paul and Virginia" in that tropical island. Readers of that once popular romance of childhood will recall the picture of Paul and Virginia shoulder to shoulder, hand in hand, standing together in their youth and beauty in the shadow of a giant palm branch.

Mont Pelee has effaced these memories of Martinique, and that unhappy island will always hereafter be associated in our minds with the "fall of fire," as the French commander of the Suchet so graphically described it, which descended upon St. Pierre on the morning of May 8, 1902, and in the incredibly short time of three minutes wiped out a town.

WHAT AN OLD COPY OF THE STANDARD CONTAINED.

A faded copy of the Standard, printed at Antigua, has been preserved, containing a story of the adventure of the Tennessee Jubilee Singers among its other matter on the cyclone. The part which more particularly describes what the Attleboroan went through is very interesting, and reads as follows:

"The Tennessee Jubilee Singers were at Fort de France, where they were to give a concert on Tuesday evening. They were dining at the Hotel de l'Avenir when the storm burst upon the city.

The hotel was unroofed in a few minutes. Then the walls began to fall in, story after story. Fortunately, the first floor bore up the weight, and all the inmates of the house crowded on the ground floor, the rain pouring down in torrents. Soon they were conscious of a distant howling, and sea spray began to dash in at the doors and windows. There was barely time, working for dear life, to make all the openings tight, when they heard the rush of water past the house, and in a few minutes they were standing waist deep in sea water.

"All the elements seemed to be let loose. The thunder was terrific. The peals were almost uninterrupted. The lightning constant and vivid, the flashes coming from every point and seeming to meet and battle furiously. Inside the house the scene was heart-rending, women and children wild with terror, screaming or praying aloud. When a piece of wall fell upon the floor above them or a more appalling peal of thunder seemed to rend the heavens, there would be a hush of expectant death more terrible still than wailing. And then the screaming would begin with increased intensity from having been pent.

"Strong men lost their heads completely. An officer in uniform who had been dining at the hotel when the tempest burst, and had not been able to get away, became raving mad. He declared that the anger of God was being vented upon the country on account of the wickedness of the people, and could only be propitiated by a sacrifice; whereupon he drew his sword, declaring that he would immolate the proprietor of the establishment and his family. He was mastered after a desperate struggle, and secured by his own sword belt to one of the legs of a billiard table.

"When, after nearly three hours of mortal agony, during which death seemed every instant imminent, the wind abated somewhat and the water subsided, there came from the streets pitiful appeals for help and shelter, which could not be resisted. Doors were partly opened, and crowds came trooping in—delicate women among them, the light clothing in which they had escaped from the wrecked houses stripped to ribbons, so that when lights could be obtained men took off their coats, waistcoats, and even shirts to cover them.

"The battle for bread is described as emulating the ferocity of starving wild beasts. In the face of hunger society had resolved itself into its elements."

Greatly to be envied is the tourist who can say, "I have visited the Island of Martinique, and the once beautiful and picturesque city of St. Pierre, which now lies buried never to rise again."

VEGETATION.

Travelers exhaust themselves in trying to describe the natural beauty of Martinique. Rising almost vertically from the sea, its sheer slopes are hidden under the billows of green, dense primeval forests, where vegetation flourishes with unparalleled richness. Where clearings had been made, over perhaps two-fifths of the island, the earth yielded luxuriant crops. Down through the deep, picturesque ravines countless rivulets and streams ran frothing to the sea, often forming cascades and rapids of wonderful beauty. Nature had covered over the ugly foundations of the island, for the whole structure is but heaped-up volcanic debris of the Tertiary period, carved by ages into picturesque shapes.

The great natural beauty of Martinique was its growth of forests, which covered the mountain slopes with dense primeval vegetation. Down the slopes run numerous little streams, most of them mere rivulets, but there were a few which were navigable for a short distance from the sea.

A great source of pride to the natives were the Botanical Gardens at the base of the mountain, which contained specimens of all the exquisite tropical plants and flowers known to that climate.

About a mile from St. Pierre was the Jardin des Plantes, one of the most famous gardens in the world, although of late years somewhat neglected. The primitive forest was the foundation for it, and art cunningly fashioned from the natural surroundings a spot of wonderful beauty, with dense woods, running streams, waterfalls and hidden fountains. These natural resources were made use of by the French, and many and varied beautiful plants were cultivated there.

Henry Pene Du Bois, writing for the New York American and Journal, said just after the destruction of St. Pierre:

"It is not so sad to die in Martinique as it may be to die here. This thought may make one grieve less at the graves under Pelee. The temper of the West Indies, that is not felt here, alone may make one know what that thought implies. I do not assume that I have the ability to make it clear. I can say only that life is fuller, more finished there; that one enjoys it more, and that, perhaps, the extremes of life and death meet as do other extremes. Martinique is everybody's home.

"It is, as the natives say, the land of the 'revenants,' the land of the comers-back, for those who have lived in it for a year or a day sigh for it forever after.

"It is a land of infinite sweetness. I have lived in the Rue Victor Hugo in a room where were a large mahogany bed with four posts and linen curtains decked with bells, colored images of the time of the Empire in France and religious pictures. * * *

"It is a vision of Attica. At dawn all things are tinted with lilac. Yellow lights appear in the violet waves. The day comes abruptly. The sky is implacably pure, of a blue that is not seen elsewhere. The sea is orange. The twilight reddens it as rubies. In the crowds that come to the landings of boats the faces of whites, blacks, mulattoes, coolies, their beauty of form, their varied costumes, the head dress in bright colors, the conversations, the songs, the animation mingled with languid grace, make vivid to one all that the classics have evoked vaguely."

INDUSTRIES.

The industries of Martinique are not many but interesting. They enter into the life of the French Republic and into our own. They are the manufacture of rum, sugar and cocoa. The rum factories are the most important, the article being manufactured from the sugar cane which is raised in great abundance in the plantations. The most important of the rum factories, belonging to M. de Garagarri, M. Savon, and M. Berti, were located at St. Pierre. The Berti plant consisted of some five distilleries, valued at about \$500,000. The extensive sugar plant belonging to Dr. Guerin, and valued at about \$200,000, was destroyed by the volcano some days before the final eruption.



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A NATIVE MARTINIQUE WOMAN OF WEALTH.

The women of this island wear much of their wealth on their heads. The wives and daughters become the family savings bank.



Copyright, 1902, by Mrs. Mary A. Garesché.
**LOWER CLASS NATIVE WOMAN,
 ST. PIERRE.**



Copyright, 1902, by Mrs. Mary A. Garesché.
**UPPER CLASS NATIVE WOMAN,
 ST. PIERRE.**

THE CULTIVATION OF SUGAR.

The island was early given to the cultivation of sugar. It has the fickle fortune of any land which gives its attention to one product. The island is prosperous when sugar brings a good price and the crop is fair. The rich soil of that tropic land gives kindly welcome to the sugar cane. The sinewy, ebony men toil all day tirelessly in the heat rolling hogsheads of sugar, puncheons of molasses and casks of rum.

The coffee plant is cultivated, yielding a bean of such superior flavor that the natives cannot afford to keep it. They sell their own product and purchase an inferior bean from other places.

The coffee is not indigenous to the islands, but was carried there by Descheux in 1726. Driven there by the want of water, he left both the bean and the seedlings on the island.

A superior grade of tobacco is also grown on the island. Each one of the islands of the West Indies not only give different flavors of coffee, but differing flavors of tobacco, fibres of coffee and grades of sugar. The islands are peculiarly individual in this matter. Experts know the products of each island as they know the faces of men and women whom they meet. The expert is of course in demand. Fortunes are built up on the just distribution of these articles.

THE MANIOC.

One of the most interesting products is a plant called the manioc. It stands about a foot high, is vigorous, hardy and plentiful. The root of this plant in its original state is rank poison, yet it is the root of the plant which is the point of profit in the plant. From this root we obtain the tapioca, which serves as the basis of so many pleasant dishes for our table. For commercial purposes the root is crushed. When this is done there comes from it a liquid which by chemical treatment is converted into tapioca. It seems strange that a root naturally poisonous serves as a staple food for the people of the whole earth.

The root after being crushed is not worthless. By the process of crushing it becomes a shred-like material. This shredded ma-

terial is exposed to the sun and dried. This is now what is termed farine, used in a jelly-like condition to flavor fish, soup and other dishes. The manioc is a veritable treasure to the island and is a source of revenue, food and comfort. The plant grows freely everywhere in the island.

MARTINIQUE'S COMMERCIAL INTERESTS.

The commercial interests at St. Pierre make Martinique quite prominent commercially. We can see from the number of ships in the harbor at the time of the disaster how important Martinique had become. The ships of all nations were there.

There is in no sense manufactories on the island. The United States ship them hammers, nails, axes, hatchets, saws and hardware of every description. Even ice is shipped them from the United States. There are times when ice fails, and ice then runs up to thirty cents a pound. It is not an unusual sight to see steamers from the United States unloading ice at the wharves of St. Pierre. It is one of the most welcome cargoes which enters the ports. Besides hardware and ice, the United States also sends to Martinique breadstuffs, provisions, corn, lumber and a few drygoods.

EXPORT THEIR GOODS TO THE MOTHER COUNTRY.

The North American continent is bound to this island by many ties of friendship formed by merchants, sailors and educators, yet the business with Martinique was done on a different basis from that with the other islands in the West Indies. Ordinarily the commission houses shipping goods to these islands, as well as in the case of shipments to Mexico, Central and South America, received in return the products of those lands.

By the French tariff regulations extraordinary inducements are offered to the islanders to export their products to the motherland, and also to receive the products of the motherland in return. This explains the small amount of American trade in the French possessions of the West Indies.

"France allows on the products of her colonies," said a noted

writer, "what is known as a return of the 'taxes de distance'—a remittance of the duties larger in proportion to the distance between the colony and the motherland, which makes it more profitable for the colonial exporters to send their products to France, even if they cannot obtain as high prices for them there as in America. As a result, all American business with Martinique was done on a money basis."

Without the sugar industry the people of the island could not well subsist. Many of them are very poor, although outwardly their houses and shops give an impression of wealth. Inside the shops the displays appear to be quite lavish, but there are few money purchasers.

THE CREDIT SYSTEM PREVAILS.

The credit system prevails almost exclusively. The majority of the people, who are black, of course, live on next to nothing. Four pence (8 cents) a day is the usual wage for labor, and is about as much as the employers can afford to pay. The laborers work very hard for the small wage. And as a result of the recent calamity it will be, under the best of conditions, many years before that portion of the island, covered by the molten lava, can be worked. The official imports for the island in 1899, all of which passed through St. Pierre, amounted to 27,004,526 francs (\$5,400,905), while the exports were 26,603,137 francs (\$5,320,627). Of these total imports 14,181,627 francs came from France and 7,560,298 francs from the United States. The imports of coal from the United States alone in that year were 6,869 tons. The principal articles of export in 1899 were sugar, 31,664 tons, and rum, 3,577,760 gallons. Of the total exports, about \$2,000,000 represented the products of the island, while the rest was re-exported.

The loss of St. Pierre, as the mouthpiece through which Martinique expressed its industry and commerce to the outside world, takes a prominent place in the list of the material loss of the world. It was the center of the intelligence and agitations which placed Martinique in the front ranks among the industrial centers of the Antilles. With less than fifty per cent of its acreage under cultivation the people of the island were in circumstances of toler-

able comfort, while the rest of the group were in perpetual poverty. Travelers have over and over again noticed the striking absence of beggars about the place as contrasted with other islands. An industrial system, in advance of the system in vogue in other of the Antilles, was in almost universal operation. They led in the central factory or usine system of sugar manufacture and made sugar pay. Upward of 6,000 peasant proprietors contributed their industry to this condition and reaped a not-to-be-despised share of the benefits. The intelligence of the laborer is on the average higher than on any other island of that section of the archipelago.

SETTLE LABOR TROUBLES BY ARBITRATION.

It is the only island in which planters and laborers habitually met in conference as men with men to discuss labor grievances. Two or three years ago the plantation laborers went out on strike for higher wages. After sundry conferences it was decided to submit their grievances to arbitration. It is the only island in that section in which either the one thing or the other would have been done. Nowhere else are the laborers so well organized as to inaugurate anything like a successful strike and nowhere else are their claims and interests so well recognized as to regard such an attempt as anything short of "rebellion."

St. Pierre was the directing center of all these activities. It held the key to the commercial situation in which nearly \$6,000,000 worth of exports and about as much import business was done. Besides agricultural industries directed from St. Pierre, there were thousands of people skilled in all the ordinary handicrafts.

CHAPTER III.

THE PEOPLE OF MARTINIQUE—THEIR LANGUAGE, RELIGION, EDUCATION AND HABITS.

The Perfect Physique—Grace—Carriers of Merchandise—Dress—Peculiarities,
Customs, Society, Amusements—A Paris in Embryo—Market Place—
Government, Literature, Public Schools, Private Schools, Morals.

When Esnambuc formally occupied the Island of Martinique in the name of France there began the extinction of the Caribs, its original inhabitants, though at the time of the recent disaster a few of them could still be found. The importation of African slaves, generations ago, the later arrival of Asiatics, and the final colonization by European races with the consequent intermarrying of all, gave rise to a peculiar variety of color and a mingling of races in the people of Martinique found in no other of the West Indies.

There appears every shade of color, from the true African black to the apparently white native, in whom, however, runs an unmistakable strain of the negro blood. There are also on the island a proportion of pure whites, French Government officials and soldiers, traders of all nations and owners of plantations.

These, however, form but a small part of the population. The blacks and half-castes form the bulk of the inhabitants. These half-castes range from almost pure white to the dark, primitive negro. The Sanymêli have but the suspicion of negro blood; they are practically white.

There is quite a colony of Hindoos and Chinese. Each are a reproduction, in manner and customs, of their far-away lands.

If you look at the Africans among the people you will see a transformation of type. The African has been modified by two hundred years of history, soil and experience. The heel does not protrude, the foot is arched and fine, the limbs are shapely. Martinique grows fine people even among the primitive races.

The blending of the original Indian stock with French, Portuguese and other foreigners gives a rich, dark complexion and pro-

duces one of the handsomest type of people to be found anywhere in the world. The women are finely formed and the men stalwart and strong. This remarkable development may be partly attributed to the frugal life they lead.

PERFECT PHYSIQUE.

Special description is due the women of the island. Artists have said that the native of Martinique is a living statue—that among the men and women can be found hundreds whose forms equal in grace and fair proportion the idealized Apollo and Venus of the studios. One traveler says:

“Here at the market you will see one of the most characteristic of the many West Indian types, the carrier girls. These are the burden-bearers of the island, and as a special type of physical race development they cannot be surpassed in any country. This perfection of bodily physique is truly wonderful, a glowing recompense which nature and out-door life award to these dark children of tropic lands.

“Their physical endurance in sustaining heavy loads beneath the tropic sun is astonishing. We drove once to a mountain village. Our carriage was drawn by a span of mules that were strong and persevering, yet quite a number of carrier girls passed us. Up the steep winding road we saw their supple figures swaying to and fro with steady stride, balancing on their heads heavily laden trays, one hand resting on the hip.”

CARRIERS OF MERCHANDISE.

These native women are the carriers of nearly all merchandise. Fruits, vegetable and foodstuffs are carried from the interior on these human heads. Upon returning at night the carriers always put stones in their baskets in order to balance them in making turns around the mountain corners. Nearly all the regular packets, local boats, are coaled, loaded and unloaded by native women and girls. They carry trunks and boxes to almost any destination, and the great steamers are coaled by the women at Fort de

France. The coal is carried on the head and they sing as they go. The singing voices are as rich as the beautiful verdure of the island. And they sing as they come with the fruit on their heads from the interior of the island.

Fierce contests are frequent among these rival women. They will begin the quarrel whilst these huge baskets are on their heads. Then they place the burdens on the ground, fighting each other by butting with their heads. This endangers life, limb and brains. The native inhabitants of all these tropic islands are particularly savage in their warfare. We are accustomed to think there is no physical strength in the tropics, but these Creoles are perfect specimens of strength.

The Porteuse, or woman carrier, begins her training at five years of age. She carries a package of rice or an earthen bowl of water—an orange, a plate, even. She must not touch these with her hands. At nine she will carry a weight of twenty or thirty pounds fifteen miles, walking barefoot every step of the way. At seventeen she is a lithe, tall, robust girl, and she can carry 150 pounds. Her wage will not range from \$6 to \$7.50 per week, but she carries not less than 120 pounds every day and a distance of fifteen miles.

This weight is such and so balanced that the Porteuse cannot load or unload herself. It would break her neck, burst a blood vessel or rupture a muscle. She must have absolute balance for safety. There is no person on the island who will not help a Porteuse load or unload. It makes no difference how high his station or how wealthy he may be, it is a code of honor to be gladly willing to help a Porteuse with her load.

DRESS OF THE NATIVES.

Her garments are a chemise and a calico robe. These constitute her sole wardrobe for the work of the day. She has a plain cloth upon her head. This is surrounded or surmounted by a pad of coarser quality. On this she puts her basket or tray, for they carry both. She cannot wear shoes, for she not only must have a firm footing but she has mountains to climb and descend, thou-

sands of feet every day. Shoes are impossible. Shoes yield, the foot holds fast.

She carries a canvas purse at her side, and her drink is of rum or cheaper stimulant or water.

The roads of the island are magnificent, as good as the best road a Roman ever constructed. No one molests a Porteuse. She has money and valuable goods, but she is never robbed. They themselves are marvels of honesty and integrity in business.

The men laborers are stronger in proportion than the women but not so picturesque. They wear a straw hat; the trunk or body is naked, the limbs covered with trousers. They are bare of feet. When the natives dress in their holiday attire they are fond of greatly exaggerating the styles in order to be loud and showy. The business dress of the men is a loose-fitting blouse of a dark material, white trousers and a Panama hat. They are extremely fond of singularity and brilliancy in dress. Many of the costumes are of the flowing seventeenth century designs. Among the women of the richer classes there is shown a passion for jewelry—not cheap imitations, for they spurn anything other than solid gold. The earrings of the Southern ante-bellum negroes were toys beside those worn by the natives of Martinique. The women will adorn themselves with anything that is gold, and wear jewelry on all parts of the body:

GRACE AND APPEARANCE.

A striking characteristic was the marked comeliness of the women of St. Pierre. Whether this was due to the fact that a hearty sympathy with French ideals induced an absorption of French æsthetics as regards deportment, which extended from the highest down through the various grades to the lowest, or to some other influence, it is a fact that if a woman of special charm and beauty (whether colored in her way or white in her way) were met in one of the other islands the general impression—not always correct, of course—was that she was from St. Pierre.

Their movements of easy grace, hair thick and slightly curled, complexion brown but mellowed into rich tints by the sun; eyes

large, dark and poetic, lips red with the tinge of the sensuous, a form startling in its symmetry, bearing aloft a well-poised head set off by the picturesque folds of the turban—these all produce an effect fascinating as it is uncommon.

Though of recent years the turban is being discarded by some of the women, it may still be termed part of the national dress. Always it is of brilliant color, and usually a vivid yellow. On saints' days, when the cathedrals were thronged from sunrise till dark by crowding worshipers, the effect was indescribably picturesque, enhanced to the stranger by the language, a soft corruption of the musical French.

CUSTOMS OF THE PEOPLE.

The market place, as in all tropical settlements, is the focus of activity during the cool hours of the day. Here gather the whole population of the town, buying and selling. From the country districts come the farmer folk, spreading their wares, vegetables and fruits around the fountain, the noise and motion and liveliness of the scene making it fascinating to the stranger.

Quaint customs also prevail. When a child is lost the town crier goes around the streets ringing a bell and calling attention to the fact. When the streets become dusty he rings his bell and cries "Arrosez" (sprinkle the street), which, if neglected, involves a fine.

The women of the lower order, with which the island swarms, lead a careless sort of life. Their greatest pleasure consists in dressing themselves in robes of many colors, toques of bright yellow and orange and fine French gaiters, which are worn unbuttoned so that the red lining may be seen. Over their shoulders is thrown a silken handkerchief. To this display is added immense earrings and a necklace of many rows of hollow gold beads.

There were many peculiar customs in the city of St. Pierre, one of which was that the women made a practice of wearing but one slipper at a time in order to show that they really owned slippers. They always wore one slipper to show they were not poor, and thus a pair lasted them longer.

AMUSEMENTS.

In the winter time, along in January or February, there comes to the towns a light opera company from France, and the social season begins. There is much entertaining and dancing in a small way.

In the summer or rainy season it is dull. The terrible tropical rain comes and floods the streets, and the stores are often filled with water to the depth of a few inches. But it soon runs off, the sun comes out and it is fine once more.

A TROPICAL LITTLE PARIS.

Never has a nation so indelibly stamped its characteristics upon an alien race as France transformed the negress of Martinique. A child of sunshine, St. Pierre was truly a tropic little Paris, whose people were all Parisians of a darker hue. Different, indeed, is it from the English islands where the negro boatman quarrels sullenly over his fee, and the sighing planter talks of nothing but impending ruin. The other Caribbees are filled with regrets and moaning, but when the steamer anchored at St. Pierre— — !

It began with rollicking, naked, diving boys, who paddled with shouts of laughter in little coffin-like boats to the steamer's side, to beg you to throw a penny over to them. A shout, a single splash, as a dozen little brown bodies plunged into the water after the sinking coin—up they came again, the triumphant possessor of the penny chanting a saucy poem as he scrambled back into his boat.

It continued when your boatman sang in perfect rhythm to his stroke and smiled when he received his pay. On the narrow beach hundreds of brightly clad figures with heavy burdens on their heads that would affright our burliest Northern porters, walked briskly, easily along, passing quick jests back and forth, each sally bringing out a ripple of mellow laughter.

All up and down the Rue Victor Hugo, as the main street was called, it was the same. From bay, from shore, from street, even from up the green-wooded hills, one long peal of light-hearted laughter rose with each morning's sun, to die away long after it

set. Does it not seem cruel that this bit of Paradise should meet with such a fate? That the past tense must be used in its description instead of the present?

GAY LIFE AT MARTINIQUE.

The life of the foreign people, the whites, is select and even idealistic. A real cultivation pervades their association. The temperature has a mean of 81 degrees, which permits an open-air life with games incident to cultivated and leisured classes.

C. J. Moore, a Western man who spent some time in Martinique during one winter, said at the time of the disaster he was not thinking half as much of the ruined city as he was of some of the pleasant, happy, careless people he met there.

One colored boy he named "Pete." Although he boasted of a French name, Pete seemed to fit him very well and he took kindly to it. He first met Pete when taking a walk, and finding that he could speak good English, and that he was bright and intelligent, made him his companion many times while exploring the surrounding country.

Pete, who liked to stroll around, but who detested real work, reminded him strongly of the negroes of the plantations down south; he was the same sort of a loyal, careless, good natured fellow.

Once he went by boat to Fort de France and took Pete with him. Pete was 23, but he had never before made the journey of ten miles from one city to the other. Pete was anxious to go with his friend when Mr. Moore left, and he thought of taking him with him, and finally offered to do so, but at the very last moment Pete declined. He wanted to see the United States, but he did not want to leave a young woman of his acquaintance. "I have been wondering," said Mr. Moore, "how my poor Pete met his death. He was a good fellow, and a bright spirit if there ever was one."

Mr. Moore was much interested in the street scenes. A group of the natives taken at random would be found to be apparently perfectly happy. They were ready to laugh or sing, he said, and seemed to him to be real children of the sun.

He met several of the business men, and after he left, received a letter from one of them, enclosing a scarf pin he lost while in his store one day. It was found by one of the clerks after he sailed, and was sent to him.

In many ways he was made to feel while he was there that those he met were anxious to help him have a good time. Pete was the only one who was willing to forego business entirely in order to amuse him, but then bright, light-hearted Pete made amusing somebody, the business of his life.

"After all, they were only strangers," said Mr. Moore, "but I couldn't help feeling when I read of the awful disaster that I had lost some good friends. I can only hope that my poor, faithful Pete was permitted to pass out of this world without much suffering. Knowing his habits as I do, I doubt if he was awake at the time."

DAAPHNE OF THE MARKET PLACE.

Another writes: From between the pages of my notebook as I write falls a bright flower, roughly pressed, its petals not yet faded, its leaves still green. Daphne gave me that—bronze-limbed, black-eyed Daphne of the market place.

Perfect in form and color as were the fruits in the wicker tray before her, so was Daphne, La Belle Negresse of the market place. Around the brown-gold sapodillas, Daphne had thrown, with a careless grace, a tangle of brilliant tropic flowers. Over her own brown-gold skin the same artist had draped wondrous-hued Madras, its dazzling colors rivaling the blossoms themselves.

"Would the monsieur buy the fruits of the pauvre petite Daphne?" Most assuredly monsieur would, would indeed have purchased yams or sea salt from so charming a pleader. "Oh, so kind," was monsieur. With a smile that showed a gleam of faultless teeth she endowed him with countless virtues unpossessed even by the blessed saints. And when monsieur declined the change she picked, with dainty fingers, the rarest flower on the tray and fastened it on the lapel of his coat. That was scarcely three weeks before the terrible rain of fire. The flower has not yet faded—but

“pauvre petite Daphne”—I wonder where under the mass of molten lava lies her charred form?

Alas! Daphne, the market, the gay sunlit streets, the happy crowds, the wonderful gardens, all lie black and desolate beneath that mass of molten lava—nothing remains save the still faintly scented blossom!

FRENCH TASTE EVERYWHERE.

And Daphne is but typical of the native girl of Martinique. A French taste is easily discernible in the color scheme and general design of St. Pierre. The yellow buildings with their red roofs ranged in tiers along the streets, which ran in parallel lines with the sea, up the sides of a lofty hill, presented an impressive picture as they shimmered in the blaze of the tropical sun. The contrasts of yellow and orange with a touch of white here and there and a background of perpetual green are to most beholders restful and refreshing.

There was nothing specially striking in the way of architecture. A cathedral, a gothic structure at St. Pierre, was perhaps the only building which betrayed signs of attempts at special architectural embellishments, and that was nothing very special. The buildings were mostly plain, neatly constructed places, not often more than two stories in height, and on the outside had a more striking appearance than inside. They were plain, without being severe, and the painters' taste made them picturesque without being vulgar. They generally lacked the power to impress one with a sense of their durability to the same extent as do those of most of the cities of the British colonies, but they stood ordinary tests and on the whole bore very favorable comparison.

SUFFRAGE EQUAL TO WHITE AND BLACK.

Suffrage is given to white and black equally in Martinique, but the latter outnumber the whites to such an extent that the latter take no interest in municipal matters. It would be useless, for they would be solidly outvoted.

The French people could, perhaps, give other nations some

points as to the development of a loyal and loving people under a republican system of government. Under the French Government and the Catholic Church the citizens of St. Pierre enjoyed more liberty than do the citizens of any other city outside of French rule in the West Indies. There was no social ostracism on any racial basis. Men and women were men and women, whether they were put up in ebony or alabaster. Social disabilities supervened upon inability, considered from either a financial or an intellectual standpoint (or from both), to move with becoming address in the circle to which one aspired. Men were accepted for what they were worth, and the loss of St. Pierre is the loss of a city which demonstrated this principle on a broader and more liberal scale than any other in the West Indies. The object lesson which, along these lines, it was perpetually teaching, is an item which will always win for St. Pierre the treasured memory of a leader, notwithstanding few cared to follow.

THE LANGUAGE OF MARTINIQUE.

French is the official language of the island, though the lower classes speak a peculiar patois, or dialect French, which is wholly unintelligible to foreigners though they are able to speak perfect French. The better classes are able to understand and speak pure French; but few use any other language on ordinary occasions than the patois, a colloquial jargon almost identical with the vernacular of the Channel Islanders.

A large number of people speak English, but they love the French language even in the corrupt form which obtains, and will not as a rule speak English to any whom they suspect of acquaintance with patois. I had occasion on my first visit to St. Pierre, says a traveler, to inquire of a coster-woman the price of her fruit. I addressed her in English. She replied (phonetically): "Oo pable patwah?" I answered, "Mo' pa pable patwah." "Ah," she contended, "oo pable patwah we! oo pable patwah!" That woman would rather have lost a sale than speak English to me because I had the misfortune to exhaust my vocabulary of patois, which was at the time limited to

four short words. This is typical of the people's pathetic devotion to everything French.

THE LITERATURE OF MARTINIQUE.

The society, composed mostly of French and French extraction, keep in touch with their best literature and works, the nation and the world. We cannot say that Martinique produces a literature of its own, for the area is too limited for that. All who have books to publish or ideas to present in literature return to France, where the great audience of French readers all over the world are reached. It is the old story of the sensitive and great who leave the quiet of home and the smaller area for the great field of the world. The Englishman goes to London, the American to New York, the Italian to Rome, the Austrian to Vienna, the Spaniard to Madrid, the Russian to St. Petersburg and the Frenchman to the famous City of Paris. So, Josephine and the Beauharnais got the training for a brilliant future in Martinique, but France furnishes the larger and more adventurous field.

EDUCATION.

The Government has made very elaborate provisions for popular education in comparison with the other West Indian islands. A complete public school system is maintained in the towns. There is also a government law school at Fort de France, with eighty-six students; also three secondary schools, one hundred and fifty-two primary schools in St. Pierre and seventy-five private schools, while between St. Pierre and Morne Rouge stood the college—the highest institution of learning on the island. It stood back from the beautiful road that runs to the resort, and was a favorite place for tourists to stop when on their way to visit the volcano.

There is an interesting school conducted by the officers of the artillery at Fort de France. It is open to young Frenchmen and is equal in rank to the celebrated college, Chalon Sur Marne in France. The seminary college at St. Pierre is administered by the Fathers of Saint Esprit. The whites and blacks do not attend the same school; each is in a school of their own.

It is stated by those who have spent years on the island that a large percentage of young men and young women who were graduates of the best schools in America, England, Germany and France were no better scholars. It has, too, side by side, probably greater ignorance.

THE RELIGION OF MARTINIQUE.

The island is in charge of a Bishop, who has under him two Vicar Generals, sixty-two priests, cures and three chaplains to the military forces. The island is divided into 82 parishes.

There are in the islands what is termed congregations or orders. These are five in number. The first is the Fathers of Saint Esprit, who conduct the Seminary College at St. Pierre; the second are the Brothers of the Institute de Ploërmelo; third is the Congregation of Sisters of St. Joseph de Cluny, who devoted their lives to teaching; fourth the Sisters of St. Paul de Chartres, consecrated exclusively to hospital service, and fifth and last the Sisters of Deliverance, devoted to Instruction. The deep hold that these teachers have taken upon the people could be seen by visiting Morne Rouge or Red Hill, a suburb of St. Pierre. This is a Holy City. Once a year a pilgrimage is made to this shrine and it is made on foot in true and holy fashion. The church is beautifully decorated, there are many fine paintings and the edifice is richly endowed by the gifts of the pilgrims. The Virgin is most richly arrayed and adorned. There are many crosses and Momets of Calvary in the building. Near the town is a most beautiful grotto, where there is an image of the Virgin. This grotto is overhung with true ferns. The water flows down from the rocks, forming a beautiful pool which feeds a flowing fountain. It is most charming to the eye and restful to mind and body.

Sunday is a fete day and the young brothers from the monastery and the young ladies from the seminary attend chapel in a body.

There is not a Protestant mission worth the name on the island. An effort was made about eight years ago to establish a Protestant mission, but it failed. It failed less because the people were good



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PLANTATION OWNER AND ONE OF HIS LABORERS.



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PUBLIC PARK, ST. PIERRE.

Catholics than because they were sick of orthodox creeds. The educated men and women are generally agnostic, but attend church because of a hereditary taste for the æsthetic feature of the Catholic ritual. The lower classes are as a rule no more seriously impressed.

MANNERS AND MORALS.

All classes to a greater or lesser extent divorce religion from morality. Consequently they are regarded as being, on an average, less moral than other communities in the West Indies. This judgment should, however, be accepted with reserve.

THE PEOPLE OF MARTINIQUE.

I believe it can be shown that in all personal and social dealing the people of Martinique are not in their several grades behind other people, either in the West Indies or elsewhere. The atmosphere in which they move is freer and there is probably less inducement to shamming on moral questions than in other West Indian colonies. It is not that they are so much "sinners above others," as that they oftener and more frankly than many others admit when and wherein they are sinners.

THE MARRIAGE VOW.

It has often been pointed out that the marriage relationship is held in loose esteem. For the external phases of this condition the peculiar laws are partly responsible. Back of the external shortcomings the relations of the home are generally as filial and enduring there as elsewhere, and one can easily think more so, considering that the predominant elements are a harmonious blend of the French and African. The breaking of a conventional canon, all who are able to enter into the "life" of the people will admit, is not generally the uprooting of an ethical principle. They have their weaknesses but they have also their strong points—and they are more strong than weak.

Many travelers and dwellers in the land speak frequently of the apparently deep religious feeling of the people of Martinique. On the hill above and to the right of the bay a large chapel was erected, containing a statue of the Virgin and a number of the saints of the Catholic calendar.

CHAPTER IV.

MONT PELEE IN SLUMBER AND ACTION.

Mont Pelee as it Seemed to the Inhabitants of Martinique—Famous Summer Resort—Pelee Not Feared by Natives—French Government Bulletin—Mont Pelee's Death-Knell Fate Expected—Letters Telling the Story of Danger—The Governor's Report.

While the eyes of all the world are turned toward Mont Pelee, beholding its resistless rage in hurling 30,000 souls out of existence in the space of three minutes, let us for a moment forget the horror and look upon Mont Pelee as the people of St. Pierre looked upon it, and call it Martinique's chief delight and charm.

Rising from the coast to an altitude of about 4,500 feet, it seemed to hover over the island and assume a guardianship akin to fatherhood. In bulk Mont Pelee is a massive mass of volcanic rock, with hundreds of smaller volcanoes lying all about it. On its slopes are born thirteen streams and over and around all was thrift and beauty.

DISASTER WITHOUT A PARALLEL.

The appalling disaster stands almost without a parallel in the world's history. There have been calamities in which the loss of life was greater, but there is none on record where the destruction was more complete, the death-dealing forces more mighty and resistless, more savage in the handling of fire and smoke, of boiling, steaming water and molten lava. Like a great furnace, the volcano of Pelee emptied its contents, which rushed down the mountain side in a fiery torrent, burning up all that came in its path, never stopping until the sea was reached and the destruction was complete. It spared none, had no respect for age or sex or condition. The mansions of the rich and the huts of the poor were to it the same. All were fuel for this awful furnace, all proved victims to this mighty force, which, when unchained, mocked at man and proved to him how weak and helpless he is when compared with it.

HAD BEEN PREDICTED.

That a disaster such as this would at some time occur in this volcanic region had frequently been predicted. The group of islands to which Martinique belongs is wholly of volcanic origin, and there has never been lacking proof of the thinness of the earth's crust or evidence that nature's great fires had not been wholly extinguished. Geologists who had made a careful study of the region had time and again declared that Mont Pelee was liable to burst forth in eruption at any time. When in 1851 there was an explosion, it was predicted that in fifty years another would come; but as time passed and one generation succeeded another, the prediction was forgotten, and the great volcano was counted as harmless or extinct. Men had no fear of it. They even dared to toy with it, and on its sides, nearly half-way to its dangerous mouth, built a pleasure resort, and there many of the wealthy people had erected handsome homes, where they resided nearly all the year. To them and to all the people of St. Pierre the great peak was but a beautiful background for one of the most charming and picturesque spots in the whole West Indies, a place famed as a health resort, the beauty of which once looked upon could never be forgotten.

THE FAMOUS SUMMER RESORT SAVED.

On one side rested the beautiful little town of Morne Rouge, a favorite summer resort of the well-to-do families of St. Pierre. Its only drawback being in the fact that it was damp. It is said that the moisture is so great that shoes mildew over night. Leading from Morne Rouge was a picturesque road built by the government, gradually descending 2,000 feet to St. Pierre. At frequent intervals along this road were little shrines, filled with images and statuettes, before which candles continually burned. At the very top of Mont Pelee was a beautiful shrine erected to the Virgin. The inhabitants in their most serious moments never dreamed that an eruption was again possible. Mont Pelee seemed of the past so far as fire and ashes were concerned, and of the future so far as beauty was concerned. The very fact that it lent life and thrift

to all things which touched it, and that a lake lay at the bottom of the crater gave strength to this supposition.

PELEE NOT FEARED BY NATIVES.

Mont Pelee had long since ceased to be looked upon as a thing to be feared; in fact it was, in the minds of the inhabitants, simply a mountain and the chief pride of the city, where cool breezes could be found even on the hottest days. To this mecca pleasure seekers went. Up the winding drives lined with rich tropical verdure, they stopped at every turn to look back over the city beneath which rolls away to meet the broad expanse of waters creating a picture to which only the brush of the artist can do justice.

WORDS OF AN ENGLISH TOURIST.

"The people of St. Pierre were proud of Mont Pelee; they had absolutely no fear that the grand slumbering old hill would ever spurt forth fire and death," said Percy F. Marks, an English tourist. "The natives," he continued, "regarded the mountain as a sort of protector; they had an almost superstitious affection for it. From the outskirts of the city it rose gradually, its sides grown thick with rich grass, and dotted here and there with spreading shrubbery and drooping trees. There was no pleasanter outing for an afternoon than a journey up the green, velvet-like sides of the towering mountain and a view of the quaint, picturesque city slumbering at its base.

"There were no rocky cliffs, no protruding boulders. The mountain was peace itself. It seemed to promise perpetual protection. The poetic natives relied upon it to keep back storms from the land and frighten with its stern brow the tempests from the sea. They pointed to it with profoundest pride as one of the most beautiful mountains in the world.

"Children played in its bowers and arbors; families picnicked there day after day during the balmy weather; hundreds of tourists ascended to the summit and looked with pleasure at the beautiful crystal lake, which sparkled and glinted in the sunshine. Mont Pelee was the place of enjoyment of the people of St. Pierre.

"I wonder what the trustful, worshipful people thought when the great volcano began to frown upon them; when steam and fire began to rise from those beautiful, grassy slopes? As near as I can ascertain, the spurts of lava came from the sides, not the top. From the position of the volcano the torrents must have flooded straight into the city, sweeping through the nice districts first, and next blotting out the business districts. Had some one, when I was in St. Pierre, told the natives that Mont Pelee would soon open up and hurl death at them, they would have laughed. I can just hear the placid, forbearing natives say: 'Oh, no! Old Father Pelee is our protector—not our destroyer.' But no one suggested it, because no one even suspected it."

VIEWS OF A NATIVE.

A citizen of New York, but a native of Martinique, wrote to a friend shortly after the disaster: "To me Mont Pelee was never a real terror. It was dead. There were many in the island who could remember the day fifty-one years ago when it blustered and threatened with its smoke and with its ashes. But that danger went by without a dire calamity, and all of us had come to think that it would never again threaten us.

"Now the deluge has come, and we read the quaint old city of St. Pierre, which has stood there on the edge of the sea with its back to the mountain all these years, is buried forever. It seems incredible, and yet it is true.

"As I think of the years I have spent there, of the days I have walked up the steep sides of that murderous mountain and looked down into the crater, with its lake of stagnant water sparkling in the tropic sun, I am shocked beyond expression that these two neighbors—the one towering over the other like a guardian—should have fallen out and such a tragedy come to pass."

OTHER COMMENTS ON PELEE.

R. J. Dorn, the American Trading Company's agent, of New York, returned from Martinique only a short time ago, having spent many years there. He said:

"It was a frequent custom in St. Pierre to make journeys up to the crater of Mont Pelee. By the mountain road it was about eight miles, though, as a bird would fly, only about five miles. The road ran almost to the edge of the crater, and then turned off to go to Marigot, the most important shipping village on the eastern side of the island.

"The crater of Mont Pelee is about twelve miles to the north of St. Pierre. It is very deep, its sides covered with rocks and lava beds. The crater proper was about 200 yards in diameter. At the bottom was a beautiful lake, containing clear water, slightly sulphurous in taste, but otherwise good. The strange part about the lake, however, was its unfathomable depth. All kinds of soundings were tried, but no one ever succeeded in reaching the bottom."

FRENCH GOVERNMENT BULLETIN.

A vivid picture of the eruption of Mont Pelee in 1851 was printed in the official bulletin of the French government. The following is a translation of the report:

"A tradition without historic foundation, and which antedates the establishing of the Europeans in the islands, but which is strongly impressed upon the superstitions of the people, recounts that Mont Pelee had been the seat of a volcano. The conical form of this mountain, peculiar to all mountains where this phenomenon manifests itself, the epithet 'Pelee' given to its summit, the existence there of a lake which passed for an ancient crater, the pumice-like nature of the earth, which imparts a glow to the surrounding country, strengthened the tradition, and surrounded Mont Pelee with that respect which man pays to things of which he stands in awe.

"It is known also that in one of the gorges of this mountain there was a place where sulphur was found, and which, for this reason, was called by the neighboring inhabitants the sulphur mine. Before the tenth of May of the year 1851 Martinique had not been affected by earthquakes; but it was known that Guadeloupe had suffered on many occasions, and lived in continual fear.

"On the 5th of August St. Pierre was peacefully resting, the

town was enjoying that calm slumber which the works of the day and the monotony of its habitual life assured it. If any one thought of a volcano, it certainly was not the volcano of Pelee. Toward 11 o'clock that evening a low grumbling, far distant and sinister, was heard. At first all confounded it with noises to which they were accustomed—the noises of thunder, the escape of steam from an engine whose safety valve is open, or the roar of a flowing river.

“But the noise did not cease, becoming, on the contrary, greater. I was on the roof of my dwelling at Fonds-Cavoville, which was the nearest of all the sugar plantations to the place whence the noise came. After some moments there was a second warning, which I mistook for thunder, but which became so continuous and so strange that I was called below by the farm hands.

“‘You don't understand the noise, then?’ they cried to me.

“‘Yes,’ I said; ‘it is thunder.’

“‘No,’ they said; ‘it is Mont Pelee who rumbles.’

“I looked at the sky, the mountain, the earth, but saw nothing, and continued to think that the noise was thunder only. The remainder of the night was passed in great anxiety. We saw passing over the fields many torches, indicating the fright of a great number of persons, at the same time others passed along the highway to the churches of the town to implore divine mercy. They did not know any more than we, and replied to our questions only with these lugubrious words: ‘The sulphur mine is boiling.’”

MONT PELEE'S DEATH KNELL.

It is interesting to note that during the week preceding the terrible destruction of St. Pierre, old Mont Pelee, as if loath to destroy the people who had so long lived beneath the shadow of its mighty crest, had repeatedly given warning of the impending danger, and it seems sad that the inhabitants of St. Pierre were not in places of safety when the blow came.

For days ominous thunders were heard from the gigantic mountain, and smoke and ashes issued from the crater, but the warnings were little heeded, and the people generally went about their work with hopeful hearts not realizing the awful fate that awaited

them. They had heard the ominous growling many times and the smoke seemed produced so normally that it was permissible for even those who were inclined to look on the dark side not to dread a catastrophe. At Fort de France, where the agitation of Mont Pelee attracted, as it went on, much attention, any anxiety which existed gradually died down, and when, May 5, a violent eruption of mud, the hot ashes having been mingled with water in the crater, overwhelmed Guerin's works, killing twenty-three persons, and the river in the north of the island, now swollen by a muddy torrent, noisily overflowed, it was generally believed that no further eruption would occur.

UNDERSTOOD THE WARNING.

Yet it is certain that a few understood the warnings. Among these was the Hon. Thomas T. Prentis, United States consul, for the following letter by Mrs. Prentis to her sister, Miss Alice M. Frye, who lives in Melrose, Mass., was written shortly before the disaster:

"My Dear Sister: This morning the whole population of the city is on the alert and every eye is directed toward Mont Pelee, an extinct volcano. Everybody is afraid that the volcano has taken into its heart to burst forth and destroy the whole island.

"Fifty-one years ago Mont Pelee burst forth with terrific force and destroyed everything within a radius of several miles. For several days the mountain has been bursting forth in flame and immense quantities of lava are flowing down its sides.

"All the inhabitants are going up to see it. There is not a horse to be had on the island, those belonging to the natives being kept in readiness to leave at a moment's notice.

"Last Wednesday, which was April 23, I was in my room with little Christine, and we heard three distinct shocks. They were so great that we supposed at first there was some one at the door, but Christine went and found no one there. The first report was loud and the second and third were so great that dishes were thrown from the shelves and the house was rocked.

"We can see Mont Pelee from the rear windows of our house,

and although it is nearly four miles away, we can hear the roar of the fire and lava issuing from it.

"The city is covered with ashes, and clouds of smoke have been over our heads for the last five days. The smell of sulphur is so strong that horses on the streets stop and snort. Some of them are obliged to give up, drop in their harness, and die from suffocation. Many of the people are obliged to wear wet handkerchiefs over their faces to protect them from strong fumes of sulphur.

"My husband assures me that there is no immediate danger, and when there is the least particle of danger we will leave the place. There is an American schooner, the R. J. Morse, in the harbor, and she will remain here for at least two weeks. If the volcano becomes very bad we shall embark at once and go out to sea. The papers in this city are asking if we are going to experience another earthquake similar to that which struck here some fifty years ago."

FATE EXPECTED.

Mrs. James Smith, of Minneapolis, Minn., sister-in-law of U. S. Consul Louis Ayme at Gaudeloupe, was a guest of the family of U. S. Consul T. T. Prentis at St. Pierre a year ago, being then on a tour of the islands with her brother.

She says that Mrs. Prentis told her at that time that she and her husband did not expect to leave the island alive.

Mr. Prentis and Col. Ayme had made a critical examination of the volcano and of the island, and agreed that a terrible disaster was inevitable at some time.

FELT HER FATE NEAR.

A Marseilles merchant received the following from a married sister at St. Pierre, dated May 4th, four days before the city was overwhelmed.

"I write under the gloomiest impressions, though I hope I exaggerate the situation. This unchaining of the forces of nature is horrible. Since last month I have wished myself far from this place. My husband laughs; but I see he is full of anxiety and is

trying to show a brave face in order to raise my courage. He tells me to go. How can I go alone?

"M. Guerin says the women and children should flee as from an epidemic, but that the men, especially those situated like my husband and himself, must stay, as otherwise it would cause a general panic.

"All this is very sad. The heat is suffocating. We cannot leave anything open, as the dust enters everywhere, burning our faces and eyes. I have not the courage to attend to the necessary household duties. Fortunately we have food, but we have no heart even to eat. All the crops are ruined. It is always thus in these accursed countries. When it is not a cyclone it is an earthquake, and when it is not a drought it is a volcanic eruption."

The day following the eruption of Mont Pelee letters were received by steamer, which also brought the latest copies of *Les Colonies*, the only daily paper published in St. Pierre, one of which, dated May 3, announces that an excursion arranged for the next day, to Mont Pelee, had been postponed, as the crater was inaccessible, adding that notice would be issued when the excursion would take place. It made no mention of the volcanic disturbance. But extracts from personal letters prove that some recognized the danger and were contemplating plans of action should future developments justify their fears. A letter received by Raoul Savon, member of the firm of Plissonneau & Co., said:

LETTERS TELLING THE STORY OF DANGER.

"Old Mont Pelee is smoking again this morning, the first time in fifty years."

The letter was written April 25 and the fact was only casually mentioned in the course of a business letter.

Another reads: "St. Pierre presents an aspect unknown to the natives. It is a city sprinkled with gray snow, a winter scene without cold.

"The inhabitants of the neighborhood are abandoning their houses, villas, and cottages, and are flocking to the city. It is a curious pellmell of women, children, and bare-footed peasants, big, black fellows, loaded with household goods.

"The air is oppressive; your nose burns. Are we going to die asphyxiated? What has to-morrow in store for us? A flow of lava, rain of stones, or a cataclysm from the sea? Who can tell? Will give you my last thought if I must die."

Still another letter says: "My calmness astonishes me. I am awaiting the event tranquilly. My only suffering is from the dust, which penetrates everywhere, even through closed windows and doors. We are all calm. Mamma is not a bit anxious.

"Edith alone is frightened. If death awaits us there will be a numerous company to leave the world. Will it be by fire or asphyxia? It will be what God wills. You will have our last thoughts. Tell brother Robert that we are still alive. This will, perhaps, be no longer true when this letter reaches you."

The Edith mentioned was a woman visitor who was among the rescued. This and other letters inclosed samples of the ashes, which fell over the doomed town. The ashes are a bluish-gray impalpable powder, resembling newly ground flour and slightly smelling of sulphur.

Another letter written during the afternoon of May 5 says:

"The population of the neighborhood of the mountain is flocking to the city. Business is suspended, the inhabitants are panic-stricken and the firemen are sprinkling the streets and roofs to settle the ashes, which are filling the air."

WARNING GIVEN BY WILD ANIMALS.

Early in April the wild animals left the vicinity of Pelee, even snakes, which were ordinarily in great number on the slopes, deserting them. Cattle showed uneasiness and dogs barked at night and sought the company of their masters, showing every sign of fear. Late in April rumblings were heard, but Mont Pelee had been so long dormant that the people in the valleys laughed at the warnings.

THE GOVERNOR'S REPORT.

At about this time the unrest became general and a scientific commission, presided over by the governor, M. Mouttet, assembled

in St. Pierre on May 7, the day before the calamity, for the purpose of studying the phenomena of the volcanic disturbances of Mont Pelee.

It has since been stated and probably with accuracy, that the members of this commission agreed that the relative position of the craters and the valleys debouching on the sea were such that the scientists could not affirm that the security of St. Pierre was complete, yet this announcement was so construed by the Governor to the people and presented in such a way as to allay the fears of the frightened citizens.

During the night of Wednesday the detonations had ceased and only fine ashes, like rain, fell on St. Pierre. As this continued the governor, M. Mouttet, who was then at Fort de France, tried to stop the panic which the volcanic disturbance caused.

He declared the danger would not increase and sent a detachment of soldiers to prevent a general exodus of the inhabitants.

Indignation against Governor Mouttet grows as the panic of the survivors subsides. It is remembered that while Mont Pelee was threatening and giving warning of the disaster it was about to work, the governor refused to permit any general exodus from St. Pierre. The sincerity of his belief in the safety of the people is partially proven by the fact that only a few hours later he, with his wife, went to St. Pierre. Thus it happened that they, with the commission, perished with the unfortunate victims.

ASHES AND SMOKE—MONT PELEE'S WARNING.

A native named Rivette, who was a civil functionary in St. Pierre, tells this rational story of the threatenings of the volcano:

"There was a suspicion of trouble from Mont Pelee," he said, "as far back as Tuesday of last week. We did not notice anything in town, but some of the planters living up near the mountain—it is only five miles north of us—told our merchants that rumblings had been heard under the ground along the mountain side. When these reports were repeated the next day and later, we all began to look out for an eruption. Not that we were frightened, not at all. Except a few gentlemen that owned estates immediately about Mont

Pelee and were worried lest they would lose their crops and their lands as well from the shower of ashes or lava—except these few, no one in St. Pierre had any other idea but that the eruption, when it came, would prove a novel spectacle.

“And when the eruption actually did begin, and the first puffs of smoke were followed by little showers of ashes, we all hurried up to our ‘upper town’ along the south side of the harbor to enjoy the sight. We were delighted and grateful to Providence for this splendid entertainment that every one could see.

“The next morning the ashes grew thicker, and a north wind drifted them down towards us. As they began falling and powdering the green tree tops a delicate gray-white, as the ladies’ heads are powdered in the old portraits in the palace at Fort de France, our children pretended that the snow was falling. ‘Iceland!’ ‘Iceland!’ the little ones screamed. But though the white powder was harmless enough, it became too thick for comfort. It blew in our eyes, sifted down our necks, and was carried into our houses. The goods in the shops were ruined, the children and sick people were getting half suffocated. Some persons were frightened by Sunday morning, and they got ready to leave on the first vessel going southward. Indeed, a number of families, especially those that had invalids in their household or young children, sailed to Fort de France, and a number of the poorer people that could get away started into the interior.

“Wednesday night the eruption increased somewhat, but not enough to terrify us. We could see now the shoots of flame that the grandmothers had spoken of and sometimes a river of golden lava would surge over the side of the crater and throw sparks high into the air.

“Every vessel that could be induced to go down the coast was filled with passengers, and the country roads were crowded with carts. Yet big vessels stayed off the harbor, nearly a dozen of them, I should say, several flying the American flag, a large English steamer, and the telegraph company’s steamer that was at work just off St. Pierre. The captains evidently thought that if the eruption grew dangerous they could hoist anchor and sail off. But those vessels will not sail away again in this world.”

A PROPHECY FULFILLED.

Research into scientific works develops the statement that there would be an earthquake in the Lesser Antilles about this time. The prophecy was made soon after the earthquake which devastated parts of the West Indies in 1851, it being said by scientists then that the volcanoes on these islands, though quiescent, would be likely to upturn the earth in that region in about fifty years. While this intelligence was widely known, people of modern times were inclined to disregard its potency in a large measure, believing that the volcanoes of the Antilles were nearly extinct.

At the same time the government experts in Washington expressed no surprise when the news was published that St. Pierre had been destroyed.

NO PLACE LIKE HOME.

It is difficult to understand how it was that a general exodus of the population did not take place before May 8, except, indeed, the explanation be found in one word, "home." It is one thing to bid a people depart from the city in which their homes and their interests are centered; but quite another thing to find people willing to go. To most of them, no doubt, the question, "whither shall we go?" was the crushing obstacle in the way of their flight.

Within the past few days the question has come to many, "Why should people live in such close proximity to a volcano that they are at all times in danger of destruction by an eruption of the crater?" A person who recently returned from a country where there are a number of volcanoes told the writer that it is impossible to prevent residents of the country from building houses almost under the eaves, so to speak, of the crater. They know that some day an eruption is sure to come, but they count on getting away safely, and in the majority of cases they succeed. Then they wait the long period of time necessary, sometimes a year and a half or two years, for the ground to cool so that they may again take up their residence in the old spot. Why do they do this? Because it is their home. They have spent their days in the vicinity of the

crater. They marvelled at it as children; they grew familiar with it as young men and women; they do not fear it in old age, and they would not feel at home unless beneath its shadow.

Galveston, Texas, was inundated by the sea because it was built upon the sea's level. This was known, but the people remained. What is more interesting is the spectacle of the people rebuilding the city in the same place, although it is not believed that the sea can be made either more safe or more merciful than before.

HUMAN NATURE BLIND.

In all probability the omens were sufficiently anticipatory to have given the people opportunity to escape had they read the lesson. But history has shown that human nature is singularly blind and deaf in such matters, and will take very long chances. It is the unexpected that happens, and average men don't expect or suspect more than they are compelled to do in the direction of misfortune.

The explanation is probably to be found in humanity's usual carelessness of impending danger. Pelee had been regarded as an extinct volcano for generations. It was probably thought that the mountain, so long quiescent, had done its worst when it burned a mill and showered the town with ashes. Few thought of a greater horror. So, when the final disaster came, 30,000 people were caught like so many rats in a trap. There was nothing for them to do but die in the utmost agony, in the midst of a scene of the most utter horror.

A tourist wrote May 6 saying: "We spent the night at the foot of one of the crosses of the mission, which at that time were planted at the entrance to nearly all the churches. With the day we learned that the people of St. Pierre had not been less frightened than ourselves. The noise had been heard by every one, and at daybreak it was found that the roofs of the houses and the pavements of the streets and the leaves of the trees were covered with light ashes, which gave to the town the appearance of an European village when covered by the first frost of autumn. These ashes covered the whole country between the town and Mont Pelee, and, it is said, as far as Carbet. A river called Riviere

Blanche flowed a dark stream resembling a solution of ashes or slate, the trace of which at the mouth of the river was seen far out at sea.

"The change in the topography has caused the damming of the rivers, and finding no new beds they are flooding the country. Hills and valleys are constantly forming. Mont Pelee and the hills surrounding it still rumble ominously, terrific electric storms burst forth suddenly, and as suddenly subside, and day is still turned into night by the great clouds of dust."

RENEWED ERUPTION.

A message dated May 18 received from Fort de France says: "Mont Pelee is again in eruption, and the people of Martinique are in a renewed state of terror and panic. Fort de France for six hours has been literally bombarded by stones from the infuriated volcano. Houses were destroyed and fires kindled in many quarters. With the stones fell hot mud and ashes, and the air was so filled with volcanic dust as to be almost suffocating. The present eruption is said to be even more violent than that of May 8th, though the loss of life is necessarily less.

"For many hours the earth was shaken to its very foundation, and down upon the already indescribable scene where once stood the beautiful city of St. Pierre, great boulders, red hot, were hurled. Ashes fell in such torrents that the site of the city now resembles a great, desolate plain. Thousands are fleeing from Fort de France. Some have gone into the mountains, facing almost inevitable starvation in preference to the terrible fate of death in a sea of molten lava, while others have gone to other islands, trusting themselves to the mercy of strangers.

"The ships in the harbor are loaded to their utmost capacity, ready to carry their human freight to safety at the appearance of the next great danger. The bay is filled with small boats, from which the terrified natives are begging to be taken aboard the already over-crowded ships; others who cannot obtain boats risk their lives by swimming out to the ships.

"Lieutenant McCormick, commander of the Potomac, an Amer-



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NATIVE HOME, MARTINIQUE.

This picture is a reproduction of a photograph showing the dress of the more civilized natives of Martinique. Each type of people adopted a dress that best suited their tastes. These here shown are dressed much like the people of the United States and Canada.



Copyright, 1902, by L. G. Stahl.
THE LATE U. S. CONSUL AT ST. PIERRE AND HIS FAMILY, ALL OF WHOM
LOST THEIR LIVES IN THE GREAT DISASTER.

ican vessel which was sent down to make observations on Mont Pelee, reports "that new fissures have been formed in the sides of Mont Pelee, from which wide streams of lava are flowing. The land cannot be seen for the steam which rises from the boiling waters along the coast.

"The Potomac rescued a party of refugees, which were turned over to the relief committee at Fort de France."

PANIC ON MAY 20TH.

Another message received on May 20th says a panic ensued on the 20th, when the sun, rising, shone faintly through a cloud of volcanic dust, which rolled and whirled as clouds of flame in the sky. Citizens and soldiers were equally frantic; some screamed, others prayed for protection from above. After the panic subsided hundreds rushed toward the mountains. Added to the terror caused by fear and starvation there is a lack of water. All the natural water supplies have been polluted by the lava. The mountain roads are lined with terror-stricken natives seeking refuge. Many fall dying by the way, too weak from fatigue and hunger.

"Two men endeavoring to get a glimpse of Mont Pelee from inland penetrated the island as far as they could. They report that the whole northern half of the island is running with molten lava and hot, sulphurous mud."

A cable message from Fort de France dated May 22 says:

"The American scientists who reached here on the cruiser Dixie declare that the entire island is in grave danger. The scientists lost no time in visiting the ruins of St. Pierre. The northern city is now entirely buried and new fissures are opening.

REPORT FROM A MEMBER OF THE LEGISLATURE.

M. Clerc, a member of the Legislature of Martinique, who recently explored the vicinity of Mont Pelee, said:

"I started on Friday last for Mont Pelee by the road leading along the coast from Basse Pointe and, accompanied by M. Tel-

loame Chancele, chief engineer of the sugar works, I reached a height of 1,235 meters without difficulty, and was able to ascertain that the present crater is about 300 meters in diameter. On the east it is overlooked by the Morne la Croix, the culminating point of the island, having an altitude of 1,350 meters, which is completely crumbled and mined at its base, as a result of the volcanic action, and might easily collapse. The Morne Petit Bon Homme has an incandescent aspect.

"In order to make known our presence at the point where we stood I waved a piece of white cloth, attached to a stick, in the air, which was replied to by a corresponding signal from an inhabitant of Morne Rouge, who signaled to me in this manner in order to show that he saw us.

"We felt a number of electric commotions and our shoes were damaged by the heat.

"The pond which was situated near Morne la Croix is completely dried up.

"The iron cross which stood at the foot of the mountain has been melted. Only the base of the masonry on which the cross stood and the lower part of the foot of the cross can be seen.

"The rims of the crater have much changed in appearance, and the heat where we stood was intense, and the whole aspect of the mountain was terrifying. Stones fell around us and we picked up large pieces of sulphur, which, however, we were unable to retain. The whole spot was charged with electricity, which became so violent that we were obliged to retreat.

"Our descent from the mountain was more difficult than our ascent. A blinding rain of ashes fell upon us, and the engineer was nearly killed by a large stone which fell near him. We succeeded in reaching Basse Pointe on our return, after having been four hours on the mountain under the most dangerous circumstances."

MANY LEAVE MARTINIQUE.

A letter from Fort de France dated May 23 says: "The sky is now clear and the population calm, but despite this favorable change in the situation many families have left Fort de France by

the French steamers Versailles and the Ville de Tanger for the Island of Trinidad and for Cayenne, French Guiana.

"This, with the 1,200 persons who have gone to the Island of Guadeloupe and many others who have sought refuge at St. Lucia and other islands, has lessened the population considerably.

"Besides these some 2,000 people have left for the southern parts of the Island of Martinique, where 3,000 refugees have now assembled. This desertion of Fort de France has resulted in the disorganization of many trades. A number of bakers have been compelled to close their stores, owing to the fact that their employes are among those who have fled.

"The French cruiser Tage, having Admiral Servan on board, arrived here yesterday evening. She reported that Mont Pelee now presents more assuring prospect. The clouds of smoke leaving the crater mingle with the clouds in the sky and do not have the threatening aspect which they formerly presented. A new crater has formed in the vicinity of Ajoupa Bouillon.

RIVER RUNS HOT WATER.

"A locality known as Camae Trianon is causing a good deal of anxiety at present. The Capote River is running with hot water.

"A torrential downpour of rain yesterday morning washed off the ashes from the vegetation on the mountain.

"The United States steamer Potomac made her usual trip to St. Pierre to-day with another party of scientists. She found the conditions there unchanged from yesterday. The top of the mountain was clearly visible for a considerable time. Captain McLean of the United States steamer Cincinnati, who has carefully observed Mont Pelee, agrees with other experts in reporting that a new crater has been formed below the old one. In the new crater there is a great cinder cone, more than 100 feet high, from which steam and volcanic matter is constantly pouring.

CALL IT EXPLOSIVE VOLCANO.

"It is now the unanimous opinion of the scientists that this is an explosive volcano, no real lava or moya rock material having been

emitted—only mud, steam, gases and fragments of the old crater beds. The scientists compare the mountain's outthrow to the steam of a boiler in which the pressure rises to bursting point, and they think it possible that a more violent outbreak may occur.

“The scientists remark that the explosions have occurred at progressively longer intervals and that they have also been progressively more violent. Thus there had been three light eruptions of ashes. On May 5 there was an overflow of mud, which caused the destruction of Usine Guerin; on May 8 there was the outburst which destroyed St. Pierre, and on May 20, or after an interval of twelve days, the last tremendous outburst occurred.

“A new period of rest is now on and one of two things may happen. The pressure may be confined for a still longer period and then explode with still greater violence, spreading destruction over a vast area, or the mountain may remain quiescent for another half century.”

Another letter from the same source dated May 25 says Mont Pelee is split from peak to base, and that the fissure is 400 yards wide.

REAL CAUSE OF THE DISASTER.

Professor Robert T. Hill, United States Government geologist and head of the expedition sent by the National Geographical Society to Martinique, chartered a steamer and carefully examined the coast as far north as Port de Macouba, at the extreme end of the island, making frequent landings.

After landing at Le Precheur, five miles north of St. Pierre, he walked through an area of active vulcanism to the latter place and made a minute examination of the various phenomena disclosed.

In addition to his work of investigation the professor rescued in his steamer many poor people of Le Precheur, who had ventured back after deserting their homes and found themselves in awful danger.

PROFESSOR HILL'S REPORT.

Professor Hill's report is as follows: “The zone of the catastrophe in Martinique forms an elongated oval, containing on land

about eight square miles of destruction. This oval is partly over the sea. The land part is bounded by lines running from Le Precheur to the peak of Mont Pelee, thence curving around to Carbet.

“There were three well-marked zones. First, a center of annihilation, in which all life, vegetable and animal, was utterly destroyed, the greater northern part of St. Pierre was in this zone; second, a zone of singeing, blistering flame, which also was fatal to all life, killing all men and animals, burning the leaves on the trees, and scorching, but not utterly destroying, the trees themselves; third, a large outer, non-destructive zone of ashes, wherein some vegetation was injured.

FOCUS OF ANNIHILATION.

“The focus of annihilation was the new crater midway between the sea and the peak of Mont Pelee, where now exists a new area of active vulcanism, with hundreds of fumaroles or miniature volcanoes. The new crater is now vomiting black, hot mud, which is falling into the sea. Both craters, the old and the new, are active.

“Mushroom-shaped steam explosions constantly ascend from the old crater, while heavy ash-laden clouds float horizontally from the new crater. The old ejects steam, smoke, mud, pumice, and lapilli, but no molten lava.

DESTRUCTION OF ST. PIERRE.

“The salient topography of the region is unaltered. The destruction of St. Pierre was due to the new crater. The explosion had great superficial force, acting in radial directions, as is evidenced by the dismounting and carrying for yards the guns in the battery on the hill south of St. Pierre and the statue of the Virgin in the same locality, and also by the condition of the ruined houses in St. Pierre.

“According to the testimony of some persons there was an accompanying flame. Others think the incandescent cinders and the force of their ejection were sufficient to cause the destruction.”

CHAPTER V.

QUICK RELIEF FOR THE SUFFERERS.

Hunger and Destitution of Survivors—Message of President Roosevelt—Quick Action of Congress—\$200,000 Appropriated at Once—Activity of Navy and War Departments—Many Vessels to the Relief—The World Hears and Heeds the Cry of the Destitute—Nations Respond—King Edward Sends \$5,000 as a Personal Contribution—President Loubet Gives \$4,000.

No sooner had the sad news of death and devastation come from the stricken island than charitable hearts realized that the survivors would at once need food, clothing and medicines.

The first to respond to the appeal for succor was the United States. President Roosevelt sent to Congress at noon May 12th a message asking an appropriation of \$500,000 for the relief of the sufferers, and before nightfall a bill appropriating \$200,000 had passed both houses and received the President's signature. Not a voice was raised against the bill in the Senate, and in the House only nine members could be found whose constitutional scruples would not let them vote yea.

MESSAGE OF PRESIDENT ROOSEVELT.

President Roosevelt's message to Congress was as follows:

"One of the greatest calamities in history has fallen upon our neighboring Island of Martinique. The consul of the United States has telegraphed from Fort de France, under date of yesterday, that the disaster is complete; that the City of St. Pierre has ceased to exist, and that the American consul and his family have perished. He is informed that 30,000 people have lost their lives, and that 50,000 are homeless and hungry; that there is urgent need of all kinds of provisions, and that the visit of vessels for the work of supply and rescue is imperatively required.

"The government of France, while expressing their thanks for the marks of sympathy which have reached them from America,

inform us that Fort de France and the entire Island of Martinique are still threatened. They therefore request that, for the purpose of rescuing the people who are in such deadly peril and threatened with starvation, the government of the United States may send as soon as possible the means of transporting them from the stricken island.

"The Island of St. Vincent and perhaps others in that region are also seriously menaced by the calamity which has taken so appalling a form in Martinique.

"I have directed the Departments of the Treasury, of War and of the Navy to take such measures for the relief of these stricken people as lies within the executive discretion, and I earnestly commend this case of unexampled disaster to the generous consideration of Congress. For this purpose I recommend that an appropriation of \$500,000 be made, to be immediately available."

As stated above, the action of Congress was prompt and generous. No time was lost, and Congress at once passed the following resolution:

TEXT OF RESOLUTION.

The resolution as adopted reads:

"To enable the President of the United States to procure and distribute among the suffering and destitute people of the islands of the French West Indies such provisions, clothing, medicines and other necessary articles and to take such other steps as he shall deem advisable for the purpose of rescuing and succoring the people who are in peril and threatened with starvation, the sum of \$200,000 is hereby appropriated.

"In the execution of this act the President is requested to ask and obtain the approval of the French government, and he is hereby authorized to employ any vessels of the United States navy, and to charter and employ any other suitable steamships or vessels."

So appalling were the reports received of the disasters that on the following day, May 13th, a joint committee of the House and Senate met and discussed the advisability of giving the full amount recommended by the President in his message. The decision was to the effect that it was wise to await developments.

The part of the joint resolution adopted requesting the President to ascertain whether the extension of our aid would be acceptable to France had been anticipated by the French government. The President's statement that that government had requested that ships be supplied to carry away the survivors of the catastrophe at Martinique was at first supposed to be based upon the statement of the Governor of Martinique to United States Consul Ayme; however, the request came directly from the French government through Ambassador Cambon, who personally presented the matter to the President.

PROMPTNESS OF PRESIDENT ROOSEVELT.

President Roosevelt did not wait for Congress to act before beginning preparations for the dispatch of relief, feeling sure that such action would be prompt and favorable. With keenest personal interest in the preparation for extending a helping hand to the sufferers, he called Secretary Hay in and a plan of work was mapped out, Mr. Hay being charged with the duty of acquainting Secretaries Root and Moody with the President's wishes. The character of the President's instructions to the departments concerned in the relief work may be gathered from the text of the following letter, which was delivered to Secretary Moody, after the President had seen Consul Ayme's message:

"The President directs me to express to you his wish that your department go to the furthest limits of executive discretion for the rescue and relief of the afflicted islands in the Caribbean.

"JOHN HAY."

The Treasury Department was instructed to co-operate. This action gave to the work of relief the entire force of the revenue cutters and the medical officers of the marine hospital service.

OFFICIAL DETAILS ARE GIVEN.

This message from United States Consul Ayme, who was sent to Fort de France from his post at Guadeloupe, was received by Secretary of State Hay:

AN INTERESTING DOCUMENT.

Bill of health of the British steamer Yestoe, Captain Souter, which arrived in Baltimore May 14th from St. Pierre, Martinique. This document, as will be seen, was signed by United States Consul Thomas T. Prentiss, on May 2, six days before his death in the awful disaster. A picture of the Yestoe is also given.

"FORT DE FRANCE, May 11.—The disaster is complete. The city wiped out. Consul Prentis and his family are dead. Governor says 30,000 have perished, 50,000 are homeless and hungry. He suggests that the Red Cross be asked to send codfish, flour, beans, rice, salt meats and biscuit as quickly as possible. Visits of war vessels valuable. AYME."

The War Department, with its well-organized supply departments, was regarded as in better position than any other institution to take charge of the relief measures except that it had no means of transportation. The Sedgwick, the only army transport on the Atlantic coast, was out of condition. Fortunately the navy had a handy ship in the Dixie, which arrived at New York a short time before from a training cruise. Having been a merchant freighter, she was admirably adapted to the service required of her.

SUPPLIES AND MEDICINE.

All the machinery of the government was set in motion to hasten the departure of the relief ship with supplies and medicine. The naval tug Potomac had already sailed from San Juan, Porto Rico, for the scene of the disaster, and the Cincinnati left San Domingo May 11th.

Secretary Moody immediately telegraphed orders to Captain Berry, the commander of the Dixie, to ship army supplies to be offered him and to sail at the earliest possible moment for Martinique. He was authorized to extend relief to other islands if he found any necessity for so doing. The scientific departments of the government availed of the opportunity, sending on the Dixie two professors from the geological survey. A Harvard volcano specialist was also given passage.

WAR DEPARTMENT PLANS.

Adjutant General Corbin, Quartermaster General Ludington, Commissary General Weston and Surgeon General Sternberg were charged by Secretary Root with the arrangement of that part of the relief measures pertaining to the War Department. Official

orders were dictated for the guidance of the three supply departments, giving the scheme of distribution as follows:

Three medical officers, with \$5,000 worth of medical stores; one subsistence officer, with \$70,000 in stores, consisting of rice, dried fish, sugar, coffee, tea, canned soups, condensed cream, salt, pepper and vinegar; one officer of the quartermaster's department, with \$20,000 worth of clothing supplies for men, women and children.

Secretary Root indorsed the work as follows:

"The above distribution is approved, and the purchases will be made ready for shipment."

The orders directed that the officers and stores be sent on the *Dixie*, to be distributed at such points as might be designated by the navy officer in command of the *Dixie*, under instructions given by the Secretary of the Navy. The medical officers were to render such medical aid as lay in their power in addition to the distribution of medical supplies.

So comprehensively laid were the plans of the War Department, even before the passage of the joint resolution providing for the relief of the volcano sufferers, that there was really very little remaining for the officials to do thereafter.

The plans of the commissary department, made after careful consideration of the news dispatches from the Antilles, contemplated the supply of 40,000 rations for fourteen days. In the Navy Department the carefully planned relief measures were carried forward systematically and rapidly. The *Buffalo* was ordered to be put in readiness for immediate use as a food and supply transport in case it should be decided to send more supplies than the *Dixie* could carry.

Of the little fleet of naval colliers which was placed at the disposal of the relief workers by Admiral Bradford, the *Leonidas*, which was discharging her cargo of coal at Fort Royal, was selected as the most suitable one to dispatch to Martinique, and orders forwarded to load her with supplies and get her under way as soon as possible.

Secretary Hay telegraphed to Consul Ayme to ascertain the conditions of Martinique with regard to the fresh water supply, and if it should be found that such water was needed the tenders

at Norfolk and at Key West, which already were being loaded by orders from Admiral Bradford in anticipation of need for them, would immediately make for the little island.

COMMITTEE NAMED BY PRESIDENT.

The following was issued from the White House:

"The President has appointed a committee to receive funds for the relief of the sufferers from the recent catastrophes in Martinique and St. Vincent. The gentlemen appointed from each city are asked to collect and receive the funds from their localities and neighborhoods as expeditiously as possible, and forward them to Cornelius N. Bliss, treasurer of the New York committee, which committee will act as central distributing point for the country. The President directs all the postmasters throughout the country, and requests the presidents of all national banks, to act as agents for the collection of contributions and to forward the same at once to Mr. Bliss at New York. The postmasters are also directed to report to the Postmaster General, within ten days, any funds collected on this account.

"The President appeals to the public to contribute generously for the relief of those upon whom this appalling calamity has fallen, and asks that the contributions be sent in as speedily as possible. The gentlemen designated on the several committees are requested to act at once.

NAMES OF THE COMMITTEEMEN.

"The following are the committees:

"New York—The Hon. Cornelius N. Bliss, treasurer; Morris K. Jesup, John Claflin, Jacob H. Schiff, William R. Corwine.

"Boston—Augustus Hemenway, Dr. Henry S. Pritchett, Henry Lee Higginson.

"Philadelphia—Charles Emory Smith, Charles C. Harrison, Joseph G. Darlington, Clement A. Griscom, John H. Converse.

"Baltimore—James A. Gary.

"Washington—Charles C. Glover.

"Pittsburg—A. J. Logan, H. C. Frick.

"Buffalo—John G. Milburn, Carlton Sprague.

"Cleveland—Myron T. Herrick, Samuel Mather.

"Cincinnati—Jacob M. Schmidlapp, Briggs S. Cunningham.

"Chicago—J. J. Mitchell, Marvin Hughitt, Marshall Field, Graeme Stewart.

"Milwaukee—F. G. Bigelow, Charles F. Pfister, Fred Pabst.

"Minneapolis—Thomas Lowry, J. J. Shevelin.

"St. Paul—Kenneth Clark, Theodore Schurmeir.

"Detroit—Don M. Dickinson.

"St. Louis—Charles Parsons, Adolphus Busch, Robert S. Bookings.

"Louisville—Thomas Bullitt.

"Atlanta—Robert J. Lowry.

"Kansas City—W. B. Clark, Charles Campbell.

"Omaha—John C. Wharton, Victor B. Caldwell.

"Denver—D. H. Moffatt."

With food enough on board to supply the entire population of Martinique for a week, the cruiser Dixie sailed late on the afternoon of May 14 from New York.

The Army Building was the scene of unwonted activity all day, owing to the lively efforts that were being made to collect the stores for the inhabitants of Martinique as speedily as possible.

"We've not been so busy since the last war," remarked an officer, as he mopped his brow and tried to straighten up his wilted collar. "All the big dealers want our orders, but in many cases their ideas of 'immediate delivery' are very unsatisfactory, and mean about as much as the average man's idea of paying cash. We are not placing any order except where the dealers have the stuff in their warehouses and are willing to contract to have the goods on the pier before nightfall."

NINE HUNDRED THOUSAND RATIONS SENT ON THE DIXIE.

Never before, even in war time, did the army subsistence department make such a record in collecting a shipload of food. It was done in twenty-four hours, Colonel D. L. Brainard bringing

from Philadelphia three car loads of supplies needed to make up the shipment and purchasing the rest in New York. The Dixie's cargo was composed of 900,000 rations. It contained:

Rice, pounds	982,250
Bread, pounds	214,300
Codfish, pounds	171,100
Flour, pounds	85,000
Sugar, pounds	80,000
Bacon, pounds	65,375
Coffee, pounds	16,000
Ham, pounds	6,160
Tea, pounds	4,000
Salt, pounds	4,000
Baking powder, pounds	3,024
Currant jelly, pounds	2,880
Pepper, pounds	250
Evaporated cream, cans	4,800
Condensed milk, cans	4,800
Chicken soup, cans	2,400
Beef soup, cans	2,400
Vinegar, gallons	516
Trousers, pairs	10,000
Shoes, pairs	10,000
Socks, pairs	20,000
Drawers, pairs	2,000
Shirts, pairs	4,000
Blouses, pairs	2,000
Coats, pairs	500
Tents	1,000

There are also medical supplies worth \$5,000 on board. The vessel cast off at 9:30 o'clock May 14.

SCIENTISTS GO ON DIXIE.

In addition to the officers and crew, numbering in all 250 men, the officers of the army and members of the hospital corps, the

Dixie carried a distinguished party of scientific men. The scientists aboard were:

Professor Thomas Augustus Jaggar, instructor of geology in Harvard University and an expert in regard to volcanoes.

Robert T. Hill of the United States Geological Survey.

Professor I. C. Russell of the University of Michigan.

Captain C. E. Borchgrevink and Edmund O. Hovey, geologist of the New York Museum of Natural History.

George Kennan, traveler and author, and eighteen newspaper correspondents representing various papers in New York and elsewhere.

NEW YORK CHAMBER OF COMMERCE QUICK TO ACT.

There was no lack of spontaneous offering from all parts of the country. At the New York Chamber of Commerce the following resolution was proposed by Abram S. Hewitt:

Whereas, The French Island of Martinique, one of the colonial possessions of our ancient and well beloved ally, whose assistance at a critical time secured to us the blessings of independence, has been overwhelmed by a volcanic eruption, destroying the lives of 30,000 of its inhabitants, and reducing many more to a state of impending starvation;

And, whereas, Other islands in the Caribbean Sea are threatened with a similar catastrophe, calling for the sympathy and the aid of the whole civilized world,

Therefore, Be It Resolved, That the Chamber of Commerce of the State of New York, mourning for the dead, and full of compassion for the living, thus suddenly reduced to a condition of actual starvation, calls upon its members to provide the means for immediate succor to its neighbors in their dire distress; and, with that end in view, hereby constitutes a committee of sixty, to be named by the president of the chamber, with power to add to their numbers and appoint their own officers, whose duty it shall be to provide at once for the forwarding of the necessary supplies to be secured by the contributions of its members and of such other persons as may desire to assist in this labor of love and duty.

Resolved, That the committee, so constituted, be instructed to co-operate with any similar committees which may be constituted by other organizations for this purpose, in order to economize effort, prevent waste and furnish such adequate supplies as may be required by the magnitude of the calamity.

Resolved, That the Chamber of Commerce indorses the recommendation of the President of the United States and the action of Congress in making a large appropriation of money and the provisioning of ships and supplies for the relief of the stricken people of the ruined islands.

Resolved, That contributions in money may be sent directly to the Chamber of Commerce, whose secretary will promptly acknowledge the receipt thereof, and pay the same over to the treasurer, who may be designated by the general committee.

Resolved, That the action of His Honor Mayor Low, in appealing for public aid, is heartily endorsed, and that any money thus provided will be paid into the general fund.

Resolved, That the wise and energetic action of the president of the chamber in promptly securing the cargoes of food now en route to the various Windward Islands is heartily approved, and that the chamber hereby guarantees the payment of any outlay which may thus have been incurred.

Resolved, That the committee, constituted under these resolutions, shall meet for organization on Thursday, 15th inst., at 2 o'clock p. m., at the rooms of the Chamber of Commerce.

THE ASSEMBLY ROOM FILLED.

Long before the appointed time for the meeting the assembly room of the chamber was well filled with representative men in commerce and finance. Alexander E. Orr and Abram S. Hewitt held a consultation with President Jesup. There were also present members of the Merchants' Association.

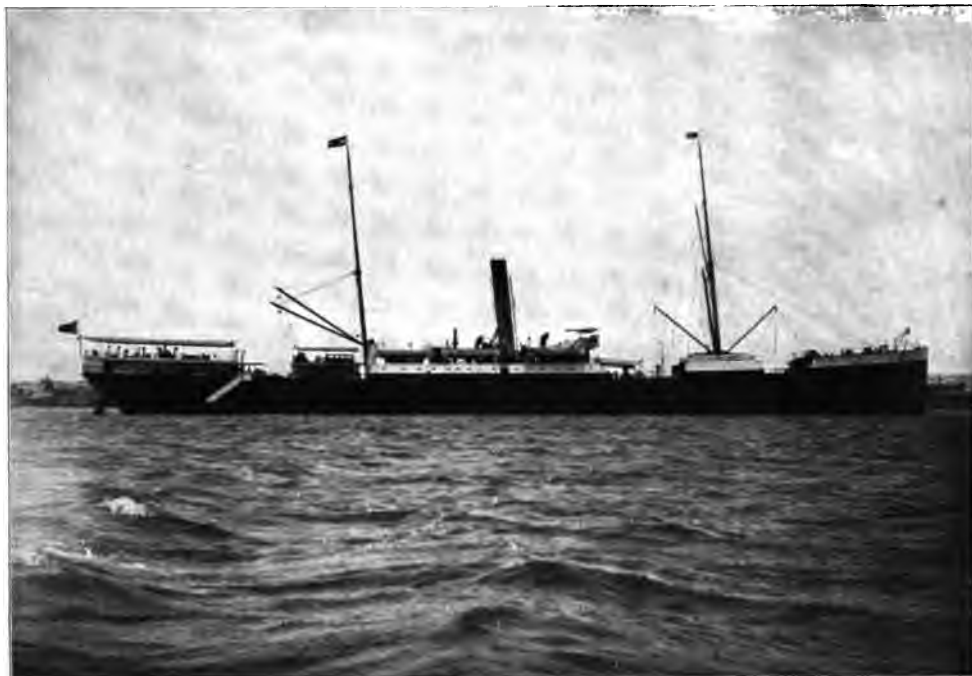
President Morris K. Jesup of the New York Chamber of Commerce held a conference with Edmond Bruwaert, the French Consul General; H. C. de Medeuil, of the American Trading Company; A. Emilius Outerbridge, the New York agent of the Quebec Steam-



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WHITE RIVIER, ST. PIERRE, DIVIDING THE OLD TOWN FROM THE NEW.

This picture gives a good idea of the once beautiful city of Martinique. Not one of these buildings now stands.



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STEAMSHIP BORAIMA, DESTROYED AT ST. PIERRE, MAY 8, 1902.

The above liner, with all on board, was destroyed, consisting of the entire crew and several passengers.



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DIVERS FOR MONEY AROUND STEAMSHIP, ST. PIERRE HARBOR.

The young fellow shown here made his living by diving for coins in the harbor of St. Pierre. He invariably caught them before they reached the bottom. He, like many others, lost his life in the recent disaster.

ship Line; Henry Hentz and others interested in the trade with Martinique. After the conference Mr. Jesup announced that he had been conferring with representatives of the shipping firms engaged in the Martinique trade to ascertain what supplies had been shipped within the last few weeks to the island and the possible consumption, so as to learn, as far as possible, what supplies might be on hand on that island for immediate use.

Mr. Jesup said he had been informed by Major Brainard, of the Quartermaster's Department, U. S. A., what the supplies were that were being shipped on the United States steamship *Dixie*. After consulting with other members of the chamber he had made arrangements to ship by the steamship *Fontabelle* of the Quebec Line, which was to sail on Saturday, supplies best adapted to the immediate needs of the survivors, the quantity to be equivalent to one thousand barrels. This precaution was taken, Mr. Jesup added, so that in case there should be any delay in the sailing of the *Dixie*, or in case of any accident to the vessel, the inhabitants of Martinique would be cared for as speedily as possible.

PROVIDE FOR IMMEDIATE NEEDS.

This action, together with that taken on Monday in ordering the purchase of the supplies aboard the steamship *Madiana*, on the arrival of that ship at Fort de France, Mr. Jesup said he thought would go far toward providing for the immediate necessities of the people who survived the eruption.

Mr. Outerbridge said after the conference that he had concurred in the arrangement for the purchase of the cargo of the *Madiana* by the Chamber of Commerce, and that he thought there would be no trouble in the taking over of the foodstuffs on that vessel, as the destruction of St. Pierre left no one to claim the consignments. He added that the *Fontabelle*, in addition to taking one thousand barrels of supplies from the Chamber of Commerce when it sailed, would take quantities of stores from private firms which had interests at Martinique and were arranging to send supplies for distribution on the island.

MAYOR LOW'S APPEAL.

The relief movement was general throughout the country. In his appeal, issued May 12th, Mayor Low of New York City says: "The appalling calamity at Martinique and in the neighboring islands makes an appeal to the generosity of New York that I am sure will not be disregarded. It is evident that help will be needed on a large scale and needed promptly. If there are any who wish to transmit money for this purpose through the Mayor, I shall be glad to receive it and to transmit it to its destination."

BOSTON URGES AID.

The committee of seven, appointed by Mayor Collins, issued the following appeal:

The undersigned, a committee selected at the meeting called by Mayor Collins to consider the question of raising funds for the many thousand sufferers from the recent volcanic eruptions in Martinique and adjacent islands, have voted unanimously to issue an appeal to the people of this section and to give all an opportunity to contribute.

Our people always have been prompt and liberal in helping the afflicted everywhere, and the committee believes that in this instance many will desire to do something for the relief of the helpless victims of an awful calamity.

Although the inhabitants of many countries will be contributors to other funds, there is great need, and the people of this section will not be doing their duty and maintaining the high standard of the past unless in this emergency they contribute their share of relief.

Let the response be immediate and generous.

Contributions should be sent at once to Lee, Higginson & Co., Boston.

(Signed.)

Chas. H. Taylor,
Henry L. Higginson,
William H. Lincoln,
T. Jefferson Coolidge, Jr.,
Thomas B. Fitzpatrick,
John M. Graham,
Elwyn G. Preston.

RED CROSS ISSUES APPEAL.

John M. Wilson, the first vice president of the American National Red Cross Association, issued the following public appeal for aid for the sufferers from the Martinique disaster:

"The American National Red Cross appeals to the people of the United States to send money and supplies in aid of the sufferers at Martinique and St. Vincent.

"The unparalleled calamity needs no words of eloquence to arouse the active aid and sympathy of our people. We therefore ask you to act promptly and generously.

"Money and supplies can be sent to the Hon. Cornelius Bliss of New York City, or money may be sent direct to Mr. W. J. Flather, the treasurer of the American National Red Cross Association, at Riggs' Bank, Washington, D. C.

"All such contributions, whether in money or supplies, intended for the Red Cross, should be so marked.

"JOHN M. WILSON,
"Brigadier General Corps of Engineers, U. S. A., Retired, First Vice President American National Red Cross."

PROCLAMATION OF MAYOR HARRISON, CHICAGO.

Mayor Harrison of Chicago issued a proclamation as follows:

"To the People of Chicago: The catastrophe in Martinique, which has shocked the whole world and aroused the sympathies of the people of every land, must appeal with peculiar force to the people of this city, which has not yet forgotten its own experience of a disastrous visitation. Chicago remembers the universal help and sympathy received in its hour of tribulation, and will not be unmindful now of the cry for succor from the Martinique sufferers, whose privations call for prompt and generous assistance. Chicago, I am confident, will do its duty and do it promptly.

"I hereby designate the following to act as a relief committee, with power to add to their membership and take such steps as will result in such a fund being raised as will reflect credit on our city:

"Marshall Field, A. N. Eddy, John Dupee, Potter Palmer, Jr., Charles Deering, E. A. Bradley, H. E. Weaver, Robert Warren, R. H. Donnelley, John Farson, J. V. Farwell, C. H. Conover, A. C. Bartlett, E. G. Keith, W. M. Hoyt, A. A. Sprague, Arthur J. Caton, Arthur Meeker, Jacob Frank, O. G. Foreman, John G. Garibaldi."

PATERSON, N. J., READY TO AID.

Mayor Hinchliffe of Paterson, N. J., issued a proclamation to the people of that city asking for assistance for the sufferers of Martinique. It recites "that while the people of Paterson have recently suffered from a great calamity they are still able to contribute their mite to a people who are even greater sufferers, and that the affliction of the one can make them sympathize the more with the sufferings of the other."

AMERICAN CHAMBER OF COMMERCE, PARIS.

A meeting called by the American Chamber of Commerce in Paris to raise funds for the relief of the West Indian sufferers was well attended, and more than 12,000 francs (\$2,400) was subscribed in a few minutes to aid the destitute people of Martinique.

The above instances serve only to show the generous spirit which was manifested by people of the United States, both at home and abroad.

THE WHOLE WORLD QUICK TO AID.

While America was first to respond to the piteous cry for help from the ill-fated islands, she was by no means the last.

GREAT POWERS SEND AID.

King Edward sent a contribution of \$5,000 to the relief fund, Kaiser Wilhelm sent \$2,500, King Victor Emanuel \$5,000, King Oscar donated \$1,000 for the relief of the West Indies, and Canada \$50,000. The Czar contributed \$50,000 through his Minister of Finance, M. de Witte, Queen Wilhelmina 2,000 florins (\$800), and the Emperor of Japan donated 2,000 francs (\$400) for the same purpose. The Pope contributed 20,000 lire (\$4,000).

HURRIES WARSHIP TO SCENE.

The government of the Netherlands ordered the Dutch warship *Koningin Regentes* to proceed from the Island of Curacao, Dutch West Indies, to the Island of Martinique at full speed in order to assist the sufferers.

The Legislature of Jamaica voted \$5,000 for the relief of the sufferers of St. Vincent and Martinique.

The Council of Berlin recommended unanimously to the municipal authorities the immediate donation of 40,000 marks (\$1,600) for the relief of the sufferers in the West Indies.

The Municipality of Paris gave 20,000 francs (\$4,000) to the Martinique relief fund, the Bank of France 25,000 francs (\$5,000) and the Rothschilds 50,000 francs (\$10,000).

The *Courier du Soir*, a newspaper which is generally well informed, said that the French Government intended, when Parliament met in June, to ask credit for the amount necessary to relieve the Martinique sufferers and to pension the children of Governor Mouttet of Martinique, who lost his life at St. Pierre.

The municipality placed contribution boxes in the city offices to facilitate the collection of small donations to the relief fund.

A committee at Havre purchased provisions for the relief of the sufferers, which were shipped on the French Line steamer *Labrador*, leaving Havre on May 22. This committee also asked for donations for the sufferers and the Western Railroad agreed to convey these donations free of charge.

Other French seaports adopted plans similar to those put in practice by the committee at Havre.

The French cruisers *Bruix* and *Surcouf* were ordered to sail on Saturday and Sunday respectively with supplies of food, wine, preserves, etc., for the inhabitants of Martinique.

KRUGER GAVE 800 FRANCS.

Though handicapped by circumstances the former President of the Boer Republic contributed 800 francs (\$160) toward the Martinique fund, and at the request of the Boer representative in

Paris the receipts from a Boer benefit meeting held in that city were devoted to aiding the Martinique victims.

Princess Waldemar of Denmark offered to receive donations for the relief of the Martinique sufferers.

Americans in Paris subscribed over \$20,000 to the Martinique relief fund. The generosity of the Americans, with the prompt aid voted by Congress and the sympathy coming from President Roosevelt and the people of the United States, was, for a time, the one subject of discussion in Paris.

NO MORE RELIEF NEEDED.

Thus from the heart of humanity poured this tribute to the fellowship of mankind. The promptness and energy and singleness of thought that marked the giving was an added tribute.

And so the hands went down into the pocket, sending money, flour, beans, and all sorts of food, clothing and medicine, until the relief committees on May 24 cabled: "*No more relief needed.*"

United States Consul Ayme, at Fort de France, cabled the State Department May 24th that he visited Admiral Servan on the flagship Tago Friday afternoon. The Admiral requested him to officially inform the Government of the United States that there were now sufficient supplies in the colony to feed every one needing help for four months, and, therefore, suggested nothing further need be sent. This suggestion was accompanied by an expression of thanks. The Governor had sent a similar cable to the French Government.

The above brief cablegram from Consul Ayme shows better than columns of words what was accomplished in way of relief in sixteen short days. This is true philanthropy and cannot fail to bind the people of continents in closer friendship and sympathy. The citizens of the American continent felt glad of the opportunity to give out of their abundance for such a cause.

WEST INDIAN RELIEF FUND SUSPENDS COLLECTION.

The general relief committee for Martinique and the West Indian Islands decided at a meeting at the Chamber of Commerce

to suspend, temporarily at least, the collection of subscriptions for the benefit of the sufferers. This action was due to the receipt by Chairman Gustav H. Schwab of the executive committee of a telegram from George B. Cortelyou, secretary to President Roosevelt, reading as follows:

"The President thinks it would be advisable to ask committees to forward funds now in hand and suspend collections."

TOTAL AMOUNT COLLECTED \$135,736.

The above amount, it must be remembered, is in excess of what was voted by Congress and contributions from Americans abroad. Carnegie gave \$5,000, and United States citizens in Paris a nice sum.

RED CROSS WITHDRAWS APPEAL.

Washington, May 22.—John M. Wilson, Vice President of the American National Red Cross, has issued the following statement:

"Information having been received, through the Department of State, from the American consulates at Martinique and St. Vincent, W. I., that the supplies already furnished for the relief of the sufferers from the recent volcanic disturbances in the islands are sufficient for present necessities, that adequate measures are being taken by the French, English, and local authorities for the supply of future needs, and that further contributions by the people of the United States are unnecessary, the appeal of the American National Red Cross for aid for the victims of the disaster is hereby withdrawn.

"Donations for the purpose of such relief already or hereafter received will be held for use in any emergency that may arise requiring action on the part of the organization."

SYMPATHY OF THE WHOLE WORLD.

A great calamity, like the disaster of Martinique, in the French West Indies, and that of St. Vincent, in the British West Indies, makes the whole world one kin in thought and work. The sympathetic chords in every human heart were played upon with telling

effect, as the real truths of what had occurred in Martinique and St. Vincent were given to the world. Regardless of race or creed, the desire to help the stricken survivors was the chief thought of the people.

France and England, the mother countries, stunned by the disaster, and scarcely realizing its awfulness, received condolences and proffers of financial aid from the United States, Canada, Germany, Russia, Italy, Japan and all great nations of the world.

President Roosevelt, with characteristic energy and thoroughness, immediately set the great agencies of the United States Government in motion. Every available means to succor the unfortunate people was utilized, as the noble heart of the American nation responded to the philanthropic suggestion of its President.

PRESIDENT ROOSEVELT'S MESSAGE OF SYMPATHY.

Following is the text of the cablegram from President Roosevelt:

"WASHINGTON, D. C., May 10.—His Excellency M. Emile Loubet, President of the French Republic, Paris: I pray your Excellency to accept the profound sympathy of the American people in the appalling calamity which has come upon the people of Martinique.

THEODORE ROOSEVELT."

President Loubet immediately cabled the following reply:

"I thank your Excellency for the expression of profound sympathy you have sent me in the name of the American people on the occasion of the awful catastrophe in Martinique. The French people will certainly join me in thanks to the American people.

"EMILE LOUBET."

Commenting upon the attitude taken by the American nation, the Temps of Paris, in an editorial says:

"This manifestation of American sympathy, on the eve of the Rochambeau fetes, tends to draw tighter the already close ties uniting the two republics, and constitutes a guarantee of peace and of the fraternity of the two nations. France will never forget the

spontaneous initiative of President Roosevelt or the significant generosity of Congress."

The United States was about to dedicate a monument at Washington to the Count de Rochambeau, who in the dark hours of the American Revolution was sent to our aid with 6,000 veteran soldiers. Could there be given more point to the words our orators uttered in the dedication ceremonies than our quick and generous response to the Macedonian cry for help from the French West Indies? Here, indeed, is action suited to the words and here a deed to attest the sincerity of our national gratitude to France for a priceless and unrequited service in the long gone but not forgotten past.

France and the world saw again, as it had seen before, the pouring out of American wealth to relieve the necessities of an alien people of another clime. And this time France recognized in the act the fraternal sentiment that began with Lafayette and Yorktown and has ever since lived in American hearts.

ROYALTY PROMPT IN OFFERS OF SYMPATHY.

Emperor William's message to the French President is unique and cannot fail to remove some of the hatred proceeding from the war of three decades ago. But that should be only one of the manifestations of international good will showing that, compete as they may, the nations of earth are dominated by a common humanity, which in times like this stands upon no ceremony but serves wherever there is need.

The Emperor's message:

"Profoundly moved by the news of the terrible catastrophe which has just overtaken St. Pierre, and which has cost the lives of nearly as many persons as perished at Pompeii, I hasten to offer France my most sincere sympathy. May the Almighty comfort the hearts of those who weep for their irreparable losses. My ambassador will remit to your Excellency the sum of 10,000 marks in my behalf, as a contribution for the relief of the afflicted."

President Loubet replied:

"Am greatly touched by the mark of sympathy which, in this

terrible misfortune, that has fallen on France, your Majesty has deigned to convey to me. I beg you to accept my warm thanks, and also the gratitude of the victims whom you propose to succor."

BRITISH GENEROSITY.

Sir Edmund J. Monson, the British Ambassador at Paris, May 13 officially notified M. Delcasse, the French minister of foreign affairs, that the British Government had placed all its available resources, ships and otherwise, in the vicinity of Martinique, at the disposal of the French authorities.

The Czar and Czarina telegraphed to President Loubet that they shared with him a lively sympathy and feeling of grief at the catastrophe that France had suffered.

The Prince and Princess Waldemar expressed deep sorrow, and the Princess sought aid for the sufferers.

Former President Kruger sent a characteristic message of condolence to President Loubet.

The Pope summoned the French Ambassador to the Vatican, M. Nisard, and expressed to him his keen sorrow on hearing of the St. Pierre disaster. The Pontiff requested that he be kept informed regarding the details of the volcanic outbreak.

The American Chamber of Commerce at Paris sent a note of sympathy to M. Millerand, the Minister of Commerce, on the disaster at Martinique.

LORD ROSEBERY'S COMMENT.

The London correspondent of the Paris *Matin* received tributes of sympathy with France as a result of the Martinique disaster from the Duke of Argyll, Lord Rosebery and other prominent men. Lord Rosebery said:

"Such calamities affect all our poor human race, so they should unite nations. I earnestly hope it may be so."

Thus the warm heart of the whole world goes out to the unfortunate islands. It is an idle thing to philosophize over such an event, but it is not an idle thing to sympathize with our fellow men.

Commercialism, national jealousies and rivalries are all forgotten at such a time.

CHAPTER VI.

DISPOSING OF THE DEAD AND CLEARING AWAY THE DEBRIS.

Visitors See Death, Chaos and Silence—Appalling Scenes of Volcanic Disaster—Corpses Found in Piles on Shore—Buildings Torn Down—Lava Blocks Form Titanic Ruins—Relief Parties Find No Sign of Life—Cyclones of Gas, Mud and Flames—Looting the Dead—General Disorder.

When the news of the catastrophe reached the nearest ports, relief parties were organized to visit the fated city and render such services as lay in their power. With sad hearts they sailed for what such a short time before had been a thriving city.

As they approached the island it was discovered that St. Pierre was no more, and the spot where once the beautiful city stood was wrapped in sheets of flame. To land was impossible. Not until the next day were they able to enter the outskirts of the city, and even then the search was hindered by the fires that were still raging.

All attempts at rescue or investigation were practically useless. Along four miles of the western coast of the island there was a bed of fire, and at sea the sky was black with smoke and ashes. Passing vessels reported that the blanket of fire which fell upon St. Pierre appeared to be consuming all the country for miles around.

Throughout Thursday the heat in the vicinity of St. Pierre was so intense and the stream of lava so unrelenting that it was impossible to approach the town. The French cruiser Suchet, after a heroic battle with the heat, suffocation and sulphur fumes, succeeded in making a dash toward the shore, nearing the land close enough to take off thirty survivors of the disaster, all of whom were horribly burned and mutilated.

St. Pierre at that time was an absolute, smoking waste concealing 30,000 corpses, completing their cremation, which was only partially accomplished by the lava.

Enormous quantities of wreckage, large and small, and ships and houses strewn the surface of the sea. Huge trees and bodies,

with flocks of sea gulls soaring above and hideous sharks fighting about them, were floating here and there. From behind the volcanic veil came blasts of hot wind, mingled with others icy cold. At Le Precheur, five miles north of St. Pierre, were canoes with men and women, frantic to get away and begging for passage on the steamer.

When the first relief parties could venture to penetrate into the streets, St. Pierre was a chaos of silent horror. The faint outlines of streets were filled with billows of viscid mud and sulphurous lava, silently heaving in enormous bubbles, which, as they broke, brought to the surface the charred bodies of the human beings the hideous brew had swallowed and disgorged.

To stand still was impossible, to go on with the knowledge that every step would bring to view some scene more haunting than all that had gone before scarcely less so, and St. Pierre in its appalling desolation portrayed above all else the repulsiveness of a noisome death and fear, the fear which makes the heart palpitate and the flowing of the blood through the veins become the keenest of torture.

SHOW UNIMAGINED SUFFERING.

It was not only that charred and contorted bodies were at every step, it was not that here was seen a family stricken as they fled from the home, it was not only the child and the grandparent side by side in a hideous death, it was the unimagined suffering of that death, the staring eyeball, with the eyelid almost invariably burned through, the expanded nostril and the torture expressed in the rigid pose of death which showed that 30,000 people within one short half minute suffered to a degree that none know and endured physical and mental torments which none can paint.

From under a large stone protruded the arm of a white woman, while just on the other side of the stone lay a native woman, her hands entirely burned away and her arms charred far beyond the wrists in a vain attempt to raise the red-hot mass from the body of her beloved mistress. What devotion that could endure such fearful suffering at so panic-stricken a moment! But a yard or two farther on lay twenty or thirty negroes, trusting that if they

could but keep together some must escape, and on white woman, faithful servant and abject negro alike the poisonous fumes and the fiery rain brought unendurable suffering and death.

BOILING RIVER IN STREET.

Through the middle of Place Bertin, where the night before lovers had strolled and children played, ran a hissing, boiling stream of mingled mud and water, all that remained of the River Gayave, but a short time before a rivulet of beauty. This boiling water, here and there convulsed and thrown up in a jet of steam, laved with venomous touch the bodies of those who so short a time before had floated upon its limpid waters. Great trees, with roots upward and scorched by fire, showed the course of the famous Rue des Arbres, and huge stones still hot and blocks of volcanic debris gave a Titanic fearsomeness to the scene.

St. Pierre was no more. From the far end of the cotton quays, where large vessels were wont to lay and busy throngs embark and disembark, to the little pier on the point where urchins fished and pleasure yachts made fast, nothing was left of the city but deformed and crippled ruins of buildings, piles and yet more piles of corpses, volcanic dust and hideous desolation. From half way up the side of Mont Pelee to the sea was one level slope of still bubbling lava, but now dull gray, lighted in places by the glow from the lava fissures, and the violet hue from the smoke of the still restless mountain.

HEAPS OF CORPSES.

Here and there amid the ruins were heaps of corpses almost all face downward. In one corner twenty-two bodies of men, women and children were mingled in one awful mass. Trees, with roots upward and scorched by fire, were strewn in every direction. Huge blocks of still hot stones were scattered about. Most notable was the utter silence and awful overpowering stench from the thousands of dead.

Careful inspection showed that the fiery stream which so completely destroyed St. Pierre must have been composed of

poisonous gases, which instantly suffocated everyone who inhaled them, and of other gases, burning furiously, for nearly all the victims had their hands covering their mouths or were in some other attitude showing they sought relief from suffocation. All of the bodies were carbonized or roasted.

SIGHT FROM SEA FEARFUL.

From the sea the sight was scarce less fear-inspiring. The island, with its lofty hills, was hidden behind a huge veil of violet or leaden-colored haze.

With great difficulty a landing was effected. The whole north end of the island was covered with a silver gray coating of ashes resembling dirty snow. Furious blasts of fire, ashes and mud swept over the lifeless area and the relief parties were impotent to do aught but look and depart, thankful to leave the city behind them. None, however, will ever leave behind the memory of those sights or the fear with which they were viewed.

HEAT AND STENCH AWFUL.

The heat from the smoking, lava-covered ruins was suffocating and the stench from the corpse-strewn streets was awful.

On all sides were found portions of corpses, which were gathered up by the soldiers and gendarmes and burned on one of the public squares. Not a drop of water was procurable ashore.

The darkness caused by the clouds of volcanic dust shrouded the town and continuous subterranean rumbling added to the horror of the scene.

At the landing place some burned and ruined walls indicated the spot where the custom-house formerly stood, and traces of the larger shops could be seen. In that neighborhood hundreds of corpses were found lying in all kinds of attitudes, showing that the victims had met death as if by a lightning stroke. Every vestige of clothing was burned away from the charred bodies, and in many cases the abdomens had been burst open by the intense heat.

Many strange and incomprehensible incidents are recounted. The charred body of a woman, with a silk handkerchief, unburned and in perfect condition, held to her lips was found. The crisped bodies of young girls were found, but the shoes they wore were not burned. The features of some of the dead showed terrible fright and agony, while in many instances the faces of the victims were quite calm, as though they were stricken down instantly where they stood, without a moment's warning or with hardly time to appreciate for an instant the deadly peril they were in.

The most populous quarters of the town were buried under a thick layer of cindered lava, which apparently entirely consumed the bodies of the victims. But in the lower portions grim piles of bodies were stacked everywhere, showing that death had stricken them while the crowds were vainly seeking escape from the fiery deluge. In one instance an entire family of nine persons were found, all tightly locked in each others' arms, and the bodies in a horrible state of decomposition.

It is judged from the positions of the bodies that many were overcome almost before they realized the extent of the peril. Many of the bodies were in lifelike positions, as though death had come with a breath, as indeed must have been the case.

Identification was impossible in many cases, but in other cases there was no doubt as to the identified. Some were identified by the searching parties, which were under military control and conducted under orders.

CONSUL VISITS THE CITY.

At the request of the United States consul at Barbados, Captain Davis and the Solent were placed at his disposal by the Barbados government. The Solent brought to St. Pierre the colonial secretary, two civil doctors, two military officers and Dr. W. E. Aughinbaugh of Washington, as well as a corporal and four hospital orderlies, three trained nurses and a full field hospital outfit. The Barbados government also sent 700 barrels of provisions, one ton of ice and a full supply of medicine. These were useful, but the dead only needed quick burial.

BODIES BURNED WITH PETROLEUM.

Several steamers, including the government vessel *Rubis*, came from Fort de France to St. Pierre. They had on board a government delegate, a number of gendarmes, a detachment of regular infantry and several priests. The vessel also carried a quantity of fire wood, petroleum and quicklime for use in the cremation of the bodies of the victims of the terrible volcanic outbreak of May 9.

Large quantities of disinfectants and stocks of clothing for the refugees were also shipped to St. Pierre. The refugees, as a rule, assembled at Le Carbet and Case Pilote, not far from St. Pierre, and where over a thousand of them died from the fearful stream of lava that poured down Mont Pelee.

CREMATING THE DEAD.

Almost the first thing done was to make preparations for the cremation of the dead. Fatigue parties of soldiers built enormous pyres of wood and branches of trees, upon which they heaped the dead bodies by scores, and burned them as rapidly as possible. To facilitate the combustion and to destroy as far as possible the frightful odor of burning flesh which came from them, the impromptu crematories were heavily soaked with coal tar and petroleum. All the dead were naked, their clothing apparently having burned from their bodies like so much tinder, while they themselves were roasted to death. In the vast majority of instances fire seems to have been the sole cause of death.

BURIAL PARTIES WORK NIGHT AND DAY.

The terrible scenes witnessed by the burial parties were most heart-rending. Steps were taken to prevent disease from results of the disaster. Although burial parties worked night and day, it was impossible that the dead could be cared for as their friends would wish.

The only persons employed in burying the dead were a few small detachments of French soldiers. The negroes who survived the disaster could not be persuaded to help in the grewsome work.



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HARBOR OF ST. PIERRE DURING THE ERUPTION OF MONT PELEE.



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CAUGHT IN THE ERUPTION OF MONT PELEE MAY 8, 1902.

Fire, ruin and destruction. The above was one of the ships lost in the harbor of St. Pierre. The number of lives lost will probably never be known.

Their superstitious beliefs rendered them fearful of the results of such work.

ONLY TWO LIVE PERSONS FOUND IN THE RUINS.

Besides the prisoner found alive in the dungeon, only one living person was found. One of the burial parties found a woman beneath a pile of debris in a cellar. The physicians did everything in their power to save the life of the woman, but she was horribly burned and their efforts were in vain.

Despite her injuries she was conscious and told what little she knew of the disaster. She said that she was going about her duties as usual last Thursday morning when suddenly she heard a terrific explosion. She was so badly frightened that she fainted, and while in this condition she was terribly burned. She remained unconscious for a long time, but ultimately recovered her senses.

She then saw two members of the family in which she was employed who were still alive, but frightfully burned. They died before assistance could reach them.

The woman stated that she had no further knowledge of the catastrophe, and shortly after telling her story she died.

BANDS OF VANDALS.

Work in St. Pierre proceeded slowly and under circumstances of the most difficulty. Attracted by the hope of loot, bands of pillagers invaded the ruins. Troops were placed on guard with orders to deal with the vandals as befits their shameless crimes. Twenty-seven men and three women were brought to Fort de France and lodged in jail on charges of robbery. Two men were caught in the act of pillaging, and on appearance of a squad of troops sought escape in flight, but were shot.

One cablegram from Fort de France read:

"St. Pierre is infested with pillagers, who are forcing safes. The authorities are taking severe measures. Fifty of the ghouls have been imprisoned in this city, where the population wanted to lynch them. The thieves have been sentenced to five years' imprisonment each. The government has appointed representatives

of the commercial community to explore the ruins for valuable books and papers."

LOOKING FOR REMAINS OF FRIENDS.

A searching party was organized at Barbados by Mr. Paravicino, the Italian consul at that place, for the purpose of recovering the body of his daughter, who was visiting in St. Pierre at the time of the disaster. The commander of the American ship Potomac, endeavoring to help Mr. Paravicino, lent the service of the hospital assistants and supplied disinfectants. It was a heart-rending scene when the Italian consul recognized the body of his daughter lying with hundreds of dead bodies surrounding. Mr. Paravicino brought the body away from St. Pierre in a shell. It was carried home and a funeral took place which beggars description.

FINDING THE U. S. CONSUL.

The remains of United States Consul Thomas T. Prentis were found in his home, but almost too charred to be recognizable. Mrs. Prentis is supposed to have been found, but the authorities were in doubt as to the bodies of the daughters.

Seldom before was there a burial such as was given to the body of Thomas T. Prentis. The body, which had been recovered from the ruins at the risk of the lives of men sent ashore from the Potomac, was taken to the cemetery back of Fort de France. There were brief services at the grave, led by Captain McLean of the Cincinnati. About the grave stood officers, marines and sailors from the Cincinnati and the Potomac. The gloom was made more intense by the knowledge held by each man present that his own life was in imminent danger.

A salute was fired by the volcano that had brought destruction upon the Consul. While the service was being read there was a succession of deep, sullen detonations that might have come from great guns belonging to a mighty fleet. As the grave was being filled a cloud of ashes came over the city, and a darkness as of night followed.

CHAPTER VII.

ST. VINCENT AND ITS DEADLY VOLCANO MONT SOUFRIERE.

General Description of the Island—Climate, Soil and Productiveness—Picturesque Kingston—St. Vincent the Scene of Many Volcanic Disasters—La Soufriere in Olden Times—Its Latest Eruption—American and British Relief—A Diary of Terror.

Not alone does Martinique suffer. The British island of St. Vincent, near by, is gripped in deadly calamity, its plantations destroyed, its towns filled with ashes and its provinces soaked in a molten flow of lava from peaks which still continue to pour out their deadly stream. While the loss of life is estimated at present in thousands, the full tale is not yet told.

St. Vincent is in Windward Group of the West Indies, lying about 100 miles west of Barbados and between Grenadines. It is 17 miles long and about 10 miles in width, with an area of 132 square miles.

Through the island from north to south stretches a ridge of high, wooded volcanic hills which extends to the sea on either side and culminates in the volcano Morne Garou.

CLIMATE, SOIL AND PRODUCTIVENESS.

While the climate of St. Vincent is exceedingly humid, the average annual rainfall being nearly seven feet, yet it is not unhealthy.

The soil of the valley is a rich loam. Sugar, rum, molasses, arrow-root, coffee, indigo and maize are produced in abundance. Around Georgetown, the capital, the country is undulating and very picturesque most of the way, and at one time, before the eruption, 1812, it was planted entirely in sugar cane. The ruins of windmills and factories remain as evidences of the past prosperity of the island. To-day the cultivation of arrowroot has taken, to a certain extent, the place of that of sugar cane, and one passes field after field of broad-leafed marantas. Only one-seventh of the area is under cultivation.

Great Britain sends about one-half of the imports and consumes nearly one-sixth of its exports.

Arrowroot is grown in fields planted like Indian corn when sown for fodder. When matured it is dug up and taken to a mill, where the roots are broken off, ground, washed and strained, and the mass allowed to settle for a few days. The product is then placed on wire frames with different sized meshes to dry. It gradually sifts down through these and is barreled for shipment. In recent years it has brought about \$5 a barrel, or eight cents per pound. Formerly it brought from forty to sixty cents.

LABORERS AND WAGES.

Wages are very low and constantly being reduced, and there is a lamentable want of employment, even at the price of less than a shilling a day for able-bodied men, who are constantly emigrating, leaving the women and children to shift for themselves.

The island is more thoroughly English than the others of the group. It was discovered by Columbus in 1498 and settled by American slaves who were shipwrecked on its coast in 1675.

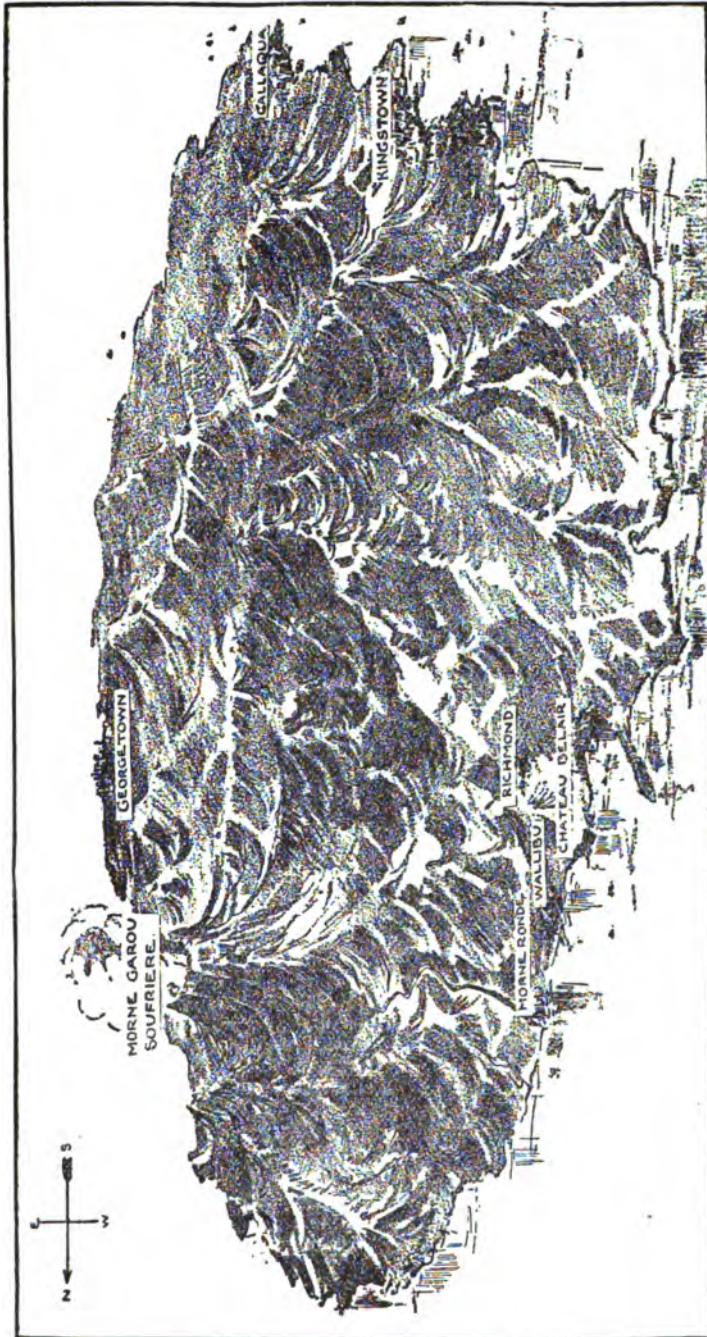
Early in the eighteenth century, during the four-handed struggle for the West Indies, which belonged to Spain by grant of the Pope, and for which England, Holland and France had little regard, France took possession of St. Vincent, and in 1763 ceded it to Great Britain. It was a part of the Spanish Main—the home of pirates—“the scene of many a battle and of the exploits of Drake and Hawkins.”

In 1797 the Carib Indians rebelling, with French aid, were partly transferred to the Island of Rattan, in the Bay of Honduras. Those that remained had made that part of the island lying at the base of the Soufriere their country.

St. Vincent has a local government subject to that of the Windward Islands.

PICTURESQUE CAPITAL.

Kingston, the capital, with about 8,000 inhabitants, is on the southwest side, the town stretching along a lovely bay, with moun-



ISLAND OF ST. VINCENT WHERE TWO THOUSAND HAVE PERISHED.
The Above Picture Shows the Location of the Great Soufriere and the Adjacent Towns.

tains gradually rising behind in the form of an amphitheater. Its red-roofed houses and a few fine stone structures show picturesquely through the palm groves. Behind these are the Governor's house and botanical buildings overlooking the town. Three streets, broad and lined with good houses, front the water. On these are stone buildings occupied as a police station and government stores. There are many other intersecting highways, some of which lead back to the foothills, from which good roads ascend the mountains. Kingston is fifteen miles from Soufriere. St. Vincent is ruled by a Governor and a nominated legislative council of eight members. Previous to the year 1877 it had a representative government.

GREAT DISASTER OF 1812.

Among all the islands of the Caribbees St. Vincent is unique in natural wonders and beauties. It is composed largely of a single peak, rising from the ocean's bed, with no outlying islets. It is the smallest of volcanic West India islands, and is chiefly notable as being the scene of one of the most terrific volcanic explosions on record. It was the great "soufriere" on the side of the Morne Garou that broke loose and wrought havoc on April 27, 1812.

Morne Garou, situated in the northern part of the island, is about 5,000 feet high, and in its flange is an immense "soufriere," or sulphur pit, similar to that in Mont Pelee.

Other great volcanic upheavals had occurred in the eighteenth century at St. Vincent, and there are vague, inconsistent traditions of one in 1718, which tore Morne Garou to pieces, and there was another severe one in 1785.

GREATEST EVENT IN HISTORY OF THE ISLAND.

But of the great one of April 27, 1812, the accounts are entirely authentic. It is the greatest event in the history of the island. For two years prior to the outbreak of 1812 the earth had been disturbed by great convulsions all about the southern shores of the Caribbean Sea, the "American Mediterranean," as it sometimes is called. On March 26, 1812, the Venezuelan coast was savagely

shaken, and the City of Caracas knocked into a heap of ruins, in which from 10,000 to 12,000 persons were killed.

From Caracas the terrific subterranean forces moved seaward, following the line of the least resistance and seeking an outlet which they at last found in the great "Soufriere" of Morne Garou on the little Island of St. Vincent.

SERIES OF APPALLING ROARS.

A roar, or, rather, a series of appalling explosions and roars, continued through several hours, and were heard in Venezuela and Barbados. The imprisoned gases broke through the rocky side of the mountain with inconceivable fury and hurled into the heavens a cloud of shattered rocks, dust, and black volumes of smoke that for three days thereafter covered the island with the darkness of night.

At Barbados the English soldiers took the uproar for the cannonading of a distant naval battle and prepared for an attack.

PALL EXTENDED 100 MILES.

Barbados is 100 miles east of St. Vincent, and the trade winds blow steadily toward the southwest. Yet apparently right against these winds the clouds of smoke and dust from the St. Vincent explosion spread until Barbados was covered with a black pall that turned the brilliant sunlight of the tropics into darkness. An impalpable black dust fell like a sooty snow-storm until the entire island was covered with it to the depth of several inches.

The mystery of the apparent movement against the strong trade winds was explained by the fact that the inky clouds from the explosion must have been hurled over 16,000 feet into the air and were carried out earthward over the sea by retiring currents above the trade winds.

The havoc wrought upon St. Vincent at that time was beyond words to tell, but from that time until the last outbreak the Morne Garou has been quiescent, save certain rumblings from time to time, to which the people long since ceased to give serious attention.

LA SOUFRIERE IN OLDEN TIMES.

Previous to the eruption of 1812 the appearance of the Soufriere was most interesting. The crater was half a mile in diameter and 500 feet in depth. In its center was a conical hill, fringed with shrubs and vines. At its base were two small lakes, one sulphurous the other pure and tasteless. From the fissures of the cone a thin white smoke exuded occasionally, tinged with a light-blue flame.

Evergreens, flowers and aromatic shrubs clothed the steep sides of the crater, which sent, as the first indication of the eruption on April 27, a tremendous noise in the air. A severe concussion of the earth followed, and then a column of thick black smoke burst from the crater. Volumes of sand darkened the air, and wood ridges and cane fields were covered with light-gray ashes, which speedily destroyed all vegetation. The sun for three days seemed to be in a total eclipse, the sea was discolored and the ground bore a wintry appearance from the crust of fallen ashes. Carib natives who lived at Morne Rond fled from their houses to Kingston. As the third day drew to a close flames sprang pyramidally from the crater, accompanied by loud thunder and electric flashes, which rent the column of smoke hanging over the volcano.

SHOWER OF CINDERS AND STONES.

Eruptive matter pouring from the northwest side plunged over the cliff, carrying down rocks and woods in its course. The island was shaken by an earthquake and beaten by cinders and stones, which set houses on fire and killed negroes and natives.

It was considered a remarkable circumstance that, although the air was perfectly calm during the eruption, Barbados, which is ninety-five miles to the windward, was covered inches deep with ashes.

The inhabitants there and on the other neighboring islands were terrified by the darkness, which continued four hours and a half. Troops were called under arms, the supposition from the continued noise being that hostile fleets were in an engagement.

NEW CRATER FORMED.

Northwest of the original crater of the Soufriere a new one was formed which caused the people no especial fear. The old crater was transformed into a beautiful blue lake, walled in by ragged cliffs to a height of 800 feet. It was considered a wonder worth seeing. On the windward side of St. Vincent lived the last remnants of the black Caribs, who a hundred years ago fought fiercely against the British invaders of their tropical domain. The black Caribs were subdued in the year 1785, after they had committed many cruelties. Their chief, Black Bulia, was gibbeted alive in chains.

RECENT ERUPTION IN ST. VINCENT.

History will have to record that in 1902 St. Vincent passed through a veritable baptism of fire, and with such fearful result as to rival the disaster of Mont Pelee and its environs with their thirty thousand victims.

Morne Soufriere had been in activity for nearly a fortnight, burying the inhabitants and vegetation in ashes. The havoc caused was so great that it is said that if a line were drawn dividing the island into halves there would in all probability be not one living being found north of it. The entire district was a smoking, incinerated ruin. Ashes were everywhere, in no place being less than two feet deep. Every Indian had disappeared. Not a sprig of green was to be seen on the island. Live stock had died. Houses had vanished. Rivers were dry and in their beds ran lava.

Many expected that the entire island would be destroyed, and the night was given up to prayers. The darkness was intense, save when everything was made light as broad day by the lightning which forked from the volcano.

This fact brings to mind a curious old Indian prophecy that the Caribs, who were fire worshipers, should one day be sacrificed to their god.

WATCHED BY SPECTATORS.

On the night of May 7 the lurid flames from Morne Soufriere were watched by the people of St. Lucia, and on the following night the *Wear*, a steamship of the Royal Mail service, was held for three hours by a block of floating ashes, while trying to make her way to Kingston.

When it finally reached Kingston at daybreak the next morning the town was in a pitiable condition. Ashes two inches deep covered the streets, and a rain of stones was falling from the crater fifteen miles away, while the panic-stricken people were praying for deliverance.

The distress in Chateau Belaire was great. Down the sides of the volcano streams of boiling lava were flowing, crossing and re-crossing each other, forming a network from which no living thing caught within its grasp could escape.

Down through an old river channel flowed a stream of molten lava and emptied into the sea, with a hissing roar that could be heard for miles. This stream reached the sea within one hundred yards of Georgetown, and was carried by its own force a quarter of a mile beyond the water's edge.

NEW CRATERS OPENED.

Many new craters opened and closed near the summit of Morne Soufriere. For ninety years the volcano has been dormant, and a beautiful blue lake filled its crater, but for a number of days preceding the present eruption the mountain had trembled violently, and deep mutterings were heard within.

On Thursday morning, May 8th, the same day as the Pelee outburst, a huge column of black smoke rose to the distance of eight miles above the crater. Ashes and rock and boiling lava deluged the island and ocean for miles around. The column of smoke descended with the blackness of night to blot out the noonday sun. It is believed that many of the victims were suffocated by the sulphurous gas before the white-hot lava reached them. The earth quaked continually, the stones and ashes and lava fell incessantly;

the darkness was dense and impenetrable save when the forked lightnings flashed from out the volcano.

THE CLIMAX WAS REACHED.

At last came the climax. May 10th Soufriere suddenly opened, sending six separate streams of lava pouring and boiling down its sides. Death was everywhere and in its most terrible form. Lightning came from the sky, killing many who had escaped the molten streams overpouring into the valleys.

The lava destroyed several districts with their live stock. People fled to Georgetown, streams were dried up, and in many places a food and water famine threatened. The government fed numbers of sufferers from the outbreak.

At present writing several districts have not yet been heard from, as the scene of the eruption is unapproachable.

Although the estates of Wallibou and Richmond, on the leeward side of the island, were entirely destroyed, and a large part of the district was covered by a thick bed of lava, there appears to have been little loss of life there, most of the inhabitants having escaped before the eruption. Unfortunately, those inhabiting the Carib country, to windward, probably believing themselves safe, did not in most cases make any attempt to get away until the last moment, with the result that nearly every one in that district perished.

STORY OF THE RUIN.

In writing home a correspondent who reached Georgetown after the eruption of May 10th says: "The first place we stopped at was the overseer's house in Langley Park. Thirty-seven bodies were found. They had already been buried, but many dead animals, the working stock, lay scattered about, and the stench was unbearable.

"At every step we encountered fresh scenes and horrors. Here and there a band of men who had been at work from the early morning were dragging corpses to the trench. There was only one way in which their grewsome work could be performed. One of the men, having first tied a handkerchief saturated with carbolic acid

over his face, would rush into the ruins and slip a noose around an ankle of one of the corpses; then the other men would drag the body by a long rope to the trench, in which it was rapidly covered over.

"In the schoolroom twenty-four bodies had been found, and had been buried in a trench close by. A few oxen, more or less injured, were wandering about in search of water. Death was everywhere—death in its worst form. As we went along mounds were pointed out to us which contained fifteen, thirty, or more bodies.

"In one shop forty persons had taken refuge and had all perished.

"The following day old La Soufriere seemed less angry, and the fear-burdened hearts began to hope the end of its fury had come. Still the lava did not cease. All the plantations were seen to be buried beneath volcanic matter.

"Everywhere were dead bodies, some partially buried, others covered with lava.

"Georgetown suffered terribly. The volcanic dust breathed in created an intense thirst, and the wretched suffering could not be allayed as the water was dried up or polluted by the gas and lava."

NEW ERUPTION ON MAY 13TH.

On May 13 a new eruption occurred, and its explosions could be heard in Barbados, a distance of one hundred miles.

Accounts given by refugees indicate that loss of life was very great. No communication has yet been had with the devastated district. No one has been able to penetrate it on account of the intense heat and the floods of lava which still prevail.

DESCRIBED AS THE "BEAUTIFUL HORROR."

An eye-witness describing the "beautiful horror" in the sky above St. Vincent on May 12 says:

"At midday the craters ejected enormous columns of steamy vapor, rising majestically eight miles and expanding into wonderful shapes, resembling enormous cauliflowers, gigantic wheels and

beautiful flower forms, all streaked up and down and crosswise with vivid flashes of lightning, awing the beholder and impressing the mind with fear. The mountain labored to rid itself of a mass of molten lava, which later flowed over in six streams down the side of the volcano; and the greater noises following united in one continuous roar all evening, through the night, to Thursday morning, accompanied with black rain, falling dust and favilla scoria, and attended with midnight darkness all Wednesday, creating feelings of fear and anxious suspense.

"Soufriere still shows signs of activity. The island is constantly trembling. Earthquakes follow one another in quick succession."

THE GOVERNOR'S TELEGRAM.

Sir Robert Llewelyn, Governor of the Windward Islands, telegraphs to the colonial office from the Island of St. Vincent, under date of Tuesday, May 13, as follows:

"I arrived here yesterday and found the state of affairs much worse than had been reported. The administrators' reports show that the country on the east coast, between Robin Rock and Georgetown, apparently was struck and devastated in a manner similar to that in which St. Pierre was destroyed, and I fear that practically all living things in that radius were killed.

"Probably 1,600 persons lost their lives. The exact number never will be known. Managers and owners of the estates, with their families, and several of the better class of people, have been killed. A thousand bodies have been found and buried. One hundred and sixty persons are in the hospital at Georgetown. Probably only six of this number will recover.

DETAILS ARE HARROWING.

"The details of the disaster are too harrowing for description. I got at St. Lucia a coasting steamer, which is running up and down the leeward coast with water and provisions. Twenty-two hundred persons have received relief. I have asked for medical officers from Trinidad and Grenada. All the neighboring British colonies

are assisting generously. Every effort is being made to grapple with the awful calamity.

"All the best sugar estates in the Carib country are devastated and the cattle are dead.

"The eruption continues, but is apparently moderating. Anxiety is still felt. All the officers and residents are co-operating with me. The ladies are making clothing."

STILL IN DESTRUCTIVE ERUPTION.

Under date of May 13, another witness says: "The Soufriere volcano is still in destructive eruption. A terrific cannonade can be heard a hundred miles away. The reports are followed by columns of smoke rising miles in the air. Immense balls of colored fire also issue from the crater. Lightning is playing fiercely in the upper sky, and the whole northern part of the island is a mass of traveling flame. It is impossible to reach the burning district by land or sea, and there are no means of estimating the destruction to life and property.

"Kingston, the capital, still is safe, though showers of ashes and pebbles are continually falling. The volcano itself is invisible.

"The bodies of 1,300 victims of the eruption of La Soufriere have already been interred, and there are from 500 to 1,000 more yet unburied.

"Five thousand utterly destitute people are now in this city dependent upon the government for their food from day to day. The hospital here is filled with dying people. There are fifty injured lying on the floor without beds. Large army tents have been erected as hospital annexes, but even they are overcrowded."

BURYING THE DEAD.

A native of St. Vincent writes, under date of May 14, to friends in Chicago, saying: "The burial parties are having the greatest difficulty. In some instances rough coffins are being made to receive the remains of the victims. The hospital is filled with dying people. Fifty injured persons are lying on the floor of that building, as

there are no beds for their accommodation, though cots are being rapidly constructed of boards. This and similar work has been in progress since immediately after the disaster. Two days elapsed before there were any burials.

RESORT TO BURNING THE DEAD.

“In some cases bodies are dragged by ropes to trenches and covered with quicklime. In other places cremation is resorted to. Often the bodies are buried with dust so deeply that they are not found until walked on by the rescue parties.

“To date nearly 2,000 deaths on this island have been reported. Bodies have been discovered in houses in lifelike attitudes, presenting grewsome spectacles. There are decomposed bodies in many houses, and in order to guard against disease it probably will be necessary for the authorities to burn these dwellings. Owing to the many difficulties in the way of those who have the matter in hand hundreds of bodies have not yet been interred.

“As wide areas of ground which formerly produced foodstuff have been devastated, there is to-day an abnormal demand for breadstuffs and a consequent scarcity of food supplies. The prices on food are advancing. The destruction of the live stock of the island has also caused a rise in the price of meat.

“The entire northern part of the island is covered with ashes to an average depth of eighteen inches, varying from a thin layer at Kingstown to two feet or more at Georgetown. The crops are ruined; nothing green can be seen; the streets of Georgetown are cumbered with heaps of ashes like snow drifts, and ashes lie so heavily on the roofs that in several cases they have caused them to fall in.

“The injured persons were horribly burned by the hot grit which was driven along with tremendous velocity. Twenty-six persons who sought refuge in a room ten feet by twelve were all killed. One person was brained by a huge stone nine miles from the crater.”

MEDICAL SUPPLIES AND HOSPITALS.

Another resident of Georgetown writes as follows: “As the Colonial Hospital here was found inadequate to accommodate the

sufferers, large army tents have been erected for the use of the patients, who are being constantly brought here from other towns on the island. But even these annex hospitals are overcrowded. The local doctors have been re-enforced by a doctor who arrived here from the Island of Grenada, one of the British Windward Islands. He brought with him a number of packages of medical supplies, which were extremely useful.

“The arrival here of the first detachment of the ambulance corps which brought sufferers caused a sensation. This party consisted of a hundred persons, whose charred bodies exhaled foetid odors, and whose loathsome faces made even the hospital attendants shudder. All these burned persons were suffering fearfully from thirst, and uttered, when strong enough to do so, agonizing cries for water. It is doubtful whether one of the whole party will recover.

“The death rate among the people in the hospitals is very high, in spite of the best medical efforts made in their behalf.

DEATH FROM SULPHURIC VAPORS.

“The sulphuric vapors which still exhale all over the island are increasing the sickness and mortality among the surviving inhabitants, and are causing suffering among the new arrivals. The hospital staffs are giving way to overwork and are bearing up with difficulty, but the news of the dispatch of an ambulance corps from the garrison of Barbados, and the statements that further medical assistance will arrive soon, are having a beneficial effect upon all concerned.

BESTOWAL OF SYMPATHY.

“All the neighboring British colonies are evincing sympathy with the sufferers here, and subscription lists have been started and food and clothing are being forwarded from all the British islands. While the entire community is thankful for this help and sympathy from British sources, on all sides is heard grateful appreciation of the prompt aid furnished by the United States in sending the Potomac here with provisions and other things for the destitute people of St. Vincent.”



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ERUPTION OF MONT PELEE AS DESCRIBED BY AN EYE-WITNESS.

The mountain seemed to split in two and close again.



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MARKET PLACE AT ST. PIERRE, MORNING OF THE ERUPTION.

VOLCANIC LAKE DISAPPEARED.

The report that the volcanic lake which occupied the top of the mountain has disappeared seems to be confirmed. A sea of lava, emitting sulphurous fumes, now apparently occupies its place, and several new craters have been formed. The last time the volcano showed activity the craters, old and new, and numerous fissures in the mountain sides, discharged hot vapor, deep subterranean murmurings were heard, the ground trembled at times; from the center of the volcano huge volumes of steam rose like gigantic pine trees toward the sky, and a dense smoke, mingling with the steam, issued from a new and active crater, forming an immense pall over the northern hills, lowering into the valleys and then rising and spreading until it enveloped the whole island in a peculiar gray mist.

A PAUSE IN VOLCANIC ACTIVITY.

A resident of St. Vincent wrote, on May 15th, saying: "Since midnight Tuesday the subterranean detonations here have ceased, and the Soufriere, Wednesday, relapsed, apparently, into perfect repose, no smoke rising from the crater, and the fissures emitting no vapor. The stunted vegetation that formerly adorned the slopes of the mountain has disappeared, having given place to gray-colored lava, which greets the eye on every side. The atmosphere is dry, but somewhat agitated. Rain would be welcome, as there is a great deal of dust in the air, which is very disagreeable and irritating to throats and eyes, and is causing the merchants to put all their dry goods under cover. The inhabitants (meaning the white population, as a rule) naturally are anxious to know whether the repose of the volcano is permanent, or whether it is the lull which usually precedes greater paroxysmal activity.

FLOCKING TO THE TOWNS.

"Some people, anticipating that there is danger of further volcanic eruptions, are leaving the outlying towns for this city. The negroes who have remained on the estates are half starved, and

the Carib survivors are leaving their caves and pillaging abandoned dwelling-houses and shops."

THE SEA ENCROACHING ON THE LAND.

It is estimated that the sea has encroached from ten feet to two miles along the coast near Georgetown, and that a section on the north of the island has dropped into the sea. This is apparently verified by the report of the French cable ship Pouyer Quertier, that soundings now show seven fathoms where before the outbreak there were thirty-six fathoms of water.

PEASANT PROPRIETARY.

Much importance is attached locally to the loss which the colony has sustained in the injury to the peasant proprietary, a scheme for the development of which was lately inaugurated by the Imperial Government, with the view of assisting the inhabitants, and in order to encourage the people to attain prosperity.

THE POTOMAC'S WORK.

Lieutenant Benjamin B. McCormick, commanding the United States steam tug Potomac, called on Governor Llewellyn and offered him the sympathy of the United States and any assistance which it is in his power to render. The Potomac also landed what she could spare of her foodstuffs. The Governor expressed his thanks. The Potomac carried official dispatches to the Island of St. Lucia.

AMERICAN SYMPATHY FOR ST. VINCENT.

By direction of the President, Secretary Hay, on May 12, sent the following cablegram to Ambassador Choate at London:

"Express to British Government the sympathy of the President and the people of this country in the affliction which has befallen St. Vincent and our desire to share in the work of aid and rescue."

Two messages expressing sympathy regarding the loss of life at St. Vincent and offering aid were sent from the United

States Government. One was private and the other official. The former was verbally presented by United States Ambassador Choate, whom Lord Lansdowne, the Foreign Secretary, warmly thanked.

The official message reached Mr. Chamberlain, the Colonial Secretary. He immediately wrote to the foreign office desiring Lord Lansdowne to very gratefully acknowledge and accept President Roosevelt's offer of assistance and to inform Mr. Roosevelt that Mr. Chamberlain had cabled to the Governor at St. Vincent asking for information as to the best method of utilizing the United States' offer. Until the Governor's answer is received nothing definite can be done.

The Associated Press was authorized to announce officially on behalf of both the foreign office and the colonial office that President Roosevelt's offer had created the deepest gratitude.

They declared that no occurrence of recent years has so brought home to them the deep and material friendship existing between the two governments.

Lord Monkbretton, Mr. Chamberlain's private secretary, said: "We are indeed grateful to America. Our only difficulty is to insure an equitable distribution of the relief sent from all sources. Until we hear from the Governor at St. Vincent we believe it would be better to defer organizing a system of distribution, though anything sent to him will doubtless be well applied. Experience from previous disasters teaches us that unprincipled persons take advantage of charity, and that a man who has only had his pig-sty burned down will demand a new house."

BRITISH RELIEF FUNDS.

Much satisfaction is expressed at the opening of the Mansion House West Indian relief fund, while the tardiness of the action taken by the authorities is adversely commented on. Thus the Westminster Gazette says:

"Once again, in the cause of charity, our kinsmen across the Atlantic have gained a substantial start, and have set the Old Country an example of swift and magnificent generosity, from which we might well benefit."

St. Paul's Cathedral and other churches arranged for special collections in aid of the fund.

BRITISH GOVERNMENT STEPS.

In a statement in the House of Commons regarding the measures proposed by the government for the relief of the sufferers from the volcanic outbreaks in the West Indies, the government leader in the House, the Right Hon. A. J. Balfour, after a reference to the steps taken, said:

"We have not taken account of the most sympathetic manner in which the United States Government have, to use their own language, expressed their desire 'to share in the work of aid and rescue.' As to the manner in which this generous offer can best be accepted the Government of the Windward Islands has already been consulted."

Mr. Balfour referred to the opening of the relief fund at the Mansion House by the Lord Mayor, Sir Joseph Dimsdale, in behalf of the sufferers in St. Vincent, and said that Canada, Jamaica and the other West Indian Islands, and the Island of Mauritius promised to help with money and goods.

"I have no doubt," he added, "that the other colonies will be equally generous. In addition the Governor of the Windward Islands has been authorized to spend whatever sums are necessary, and the Imperial Government is prepared to supplement the contributions from other sources to whatever extent may be necessary.

"As regards the Island of Martinique, Lord Lansdowne (the Foreign Minister) on May 12 instructed his Majesty's Ambassador at Paris (Sir Edward Monson) to say that it would give the Government great pleasure to offer assistance in any manner most convenient to the sufferers from the calamity, and to say that if this country could help by the loan of doctors or the gift of medical comforts and provisions we were prepared to act forthwith. The French Government replied, accepting with gratitude the offer of his Majesty's Government. From the nature of the case there must be a distinction between our own colonies and those of another power in the expenditure of money. But the Government, as stated,

are prepared to give comforts and provisions to sufferers at Martinique."

DIARY OF TERROR.

Miss Martha Farnell, a teacher on the Island of St. Vincent, is thought to have perished in the terrible outbreak of Soufriere. She lived in a little house alone with her servant in a suburb of Kingston, and during the days of awful suspense preceding the convulsions that started the flow of lava from Soufriere she had written a letter to her mother, adding day by day the awful portents of the eruption of Soufriere, to which she afterward fell a victim. The letter was found on her table by those searching for her body. The house had been completely buried in volcanic dust. Her body was not found, and it is surmised that, agonized out of reason, the young woman rushed, with her companion, into the volcanic dust. The letter is addressed to her mother, Mrs. Mary Farnell, and while it is written in broken and distracted sentences, perhaps gives a more vivid picture of the mental suffering the wretched people of St. Vincent and other West Indies are now undergoing than any other on record:

"Kingston, St. Vincent, Sunday, May 4.

"My Mother:

"The heat is so great that last night I could not sleep though my windows were both open wide, and to-day it overpowered me and I fainted.

"The natives—the Caribs—came flocking into our village yesterday. They are driven out of their country, which is near Mont Soufriere, by the heat, which is so great that they are suffocating. There are about fifty of them here now, quartered at the police station. The Governor and a committee went out last night to ascertain the real state of affairs. They tell us that at midnight old Morne Garou was a grand sight, flames shooting from its top. Morne Garou is a mountain near La Soufriere. The flames continue this morning.

"A woman who lives in Leeward has come here. She says that down there it is growing dark and fire and smoke continually spurt

from the mountain. Even here a gloom hangs over the sky, and our hearts are growing fearful.

“Thursday, May 8.

“Alive yet! But little did I expect yesterday to be writing to you now. The volcano is in eruption. God help us. He alone knows what the end will be.

“It began about 11 a. m. The noise was like terrific thunder. The children could not study—they were frightened out of their reason. Some cried, others fainted. Indeed, I think I should have done so myself had I not felt I must control my feelings for their sakes. We tried to pacify them by telling them it was only thunder, but they knew better. There were twenty of them. I told them they might go home at 1 o’clock, for the noises were so loud that it was like a continuous cannonading. I could not bear to look at the mountain, for we all feel that it may hurl us into the other world at any moment.

“We went hurriedly home and began to take the pictures from the wall, and the bric-a-brac from the shelves, lest the fearful jarring of the earth should shake them down with a crash. While we were doing this the stones began to rain down on the house; we hastened to close the windows. Great stones struck the house with such force I marvel that its roof and sides were not crushed in. At 4 o’clock we were in complete darkness. There were no stones falling then, but scoria fell like rain, sifting in through the walls until everything is covered. Our hair, our eyes, our noses are full of it. Our food, too—we are literally eating scoria.

“Oh, this dreadful night! Will it never end? It is but 1:45 now, and it seems like ages since the beginning! I am so weak from fearing whatever it is we are waiting I can no longer hold the pen, so will try to sleep, if I can.

“Friday, 9th.

“Oh, mother, mother, the horror of it! People are being brought here whose homes have been destroyed. They are wailing for those who are dead. How can we live through it?

“Two hours ago there was another shock and eruption. Oh, the panic! The people flying in every direction trying to be with their own; wringing their hands and praying for deliverance from

the awful death impending over us. There seems to be no hope for us. We cannot get away. If a steamer comes and I am spared I shall write again soon.'

Unfortunately this is the end. This teacher, like many others, never wrote again. Eternity will yield the answer as to her fate.

SUMMARY OF INTERESTING FACTS—ST. VINCENT.

The Island of St. Vincent is 1,795 miles from New York.

It is only about half the size of Martinique.

It is 18 miles long and 11 wide.

Out of a population of 41,000 at last census there were only 2,500 Europeans.

Kingstown, the capital, has a population of 5,000.

It is situated in the southwestern part of the island and 15 miles from La Soufriere.

La Soufriere, the volcano in eruption, is in the north of the island.

The volcano was last in eruption in 1812.

Then the entire island was covered with a rain of stones, ashes and lava.

Ashes from the volcano in 1812 fell on islands 100 miles away.

The island was discovered by Columbus in 1498.

It has been a British possession since 1783.

Sir Robert Llewellyn is the Governor of the island.

Over half the population is African.

A range of densely wooded hills from 3,000 to 4,000 feet in height runs from the north to the south of the island.

The island is nearly a day's sail from Martinique.

It is within half a day of Barbados and five hours of St. Lucia.

St. Vincent is 68 miles northeast of Grenada.

There are about 3,000 coolies on the island.

CHAPTER VIII.

THE FUTURE OUTLOOK OF MARTINIQUE AND ST. VINCENT.

France Offers to Transport All Wishing to Leave Martinique—Disorganization of Trades—St. Pierre Must Not Be Rebuilt—Fort de France Safe—Experiences of Mr. George Kennan and Mr. G. J. Kavanaugh—Professor Heilprin's Discoveries—Aid to Science—New United States Consul to Martinique.

With the destruction of life and property resulting from the volcanoes Mont Pelee on the Island of Martinique and La Soufriere on the Island of St. Vincent, it naturally becomes a question in the mind of man, what is the future outlook of these islands? Certain it is that even though the governments continue stations there, the people are for a time sure to scatter and it will, in all probability, be a long time before they return even though the volcanoes settle down to quiet, as is not likely to be the case for some little time.

Martinique, previous to the recent eruption, had a population of nearly 190,000 people, more than 500 people to the square mile. The whites numbered about 10,000, the French-born about 1,300, exclusive of the French garrison, which numbered 1,300. Natives, Africans, Chinese and a mixed class, made up the balance. Statistics show it to have been among the most densely populated sections in the world.

FRANCE WILL TRANSPORT ALL WISHING TO LEAVE MARTINIQUE.

From Mr. St. Elmo, paymaster on the Potomac, the second ship to reach Martinique with supplies after the disaster, it is learned that M. Decrais, Minister of the Colonies, has authorized M. L'Huerre, Governor of Martinique, to pay out of the relief funds the expenses of transportation to France or to the French colonies of all the inhabitants of Martinique who are desirous of leaving the island, provided they are able to show that they have relatives or resources at the place of their destination.

Of course it is to be understood that France did not urge them to make the change but simply offered a home and protection under the French flag.

Many of the inhabitants gladly accepted the offer made by France and have sailed, or are planning to sail to the mother country, as fast as transportation can be secured, others have gone or are going to Guadaloupe, and still others to French Guiana. As early as May 10th they began this exodus. Streams of frightened refugees poured into Fort de France from all the surrounding country. These people are not destitute, but they are terrified. They want only one thing, and that is to be taken far away from this island, with which, they say, the gods are angry, and which they will destroy by fire before it sinks under the sea.

The officers of the war vessels in the harbor are waylaid by scores of people crazed with fear begging to be carried away.

"We want not food, but only to leave," was the single and unanimous cry of all, rich and poor alike.

Although Mont Pelee is gradually losing its terrifying aspect, yet in one day alone, 1,500 persons left Fort de France for the towns of Trinidad and Cayenne, in French Guiana, some 1,200 went to Guadaloupe, and many others went to St. Lucia, while some 3,000 went to the extreme south of the island.

DISORGANIZATION OF TRADES.

This desertion of Fort de France resulted in the disorganization of many trades. A number of bakers were compelled to close their stores owing to the fact that their employes were among those who fled from the city. In addition to the bakers' stores, most of the other shops were closed. This is partly due to the enormous quantity of supplies of all kinds, food, clothing, and medical stores, which reached the port for free distribution.

Fort de France seems to feel the effects of Pelee's wrath rather more than the southern and southeastern part of the island, and it is possible an effort will be made to push emigration in that direction.

ST. PIERRE MUST NEVER BE REBUILT.

Admiral Servan of the French flagship Tage, said:

"The City of St. Pierre must never be rebuilt.

"Fort de France must not be allowed to grow any larger. I

shall use my influence to have a new city built on the windward side of Martinique, either at Trinite or Caravelle, which shall be the capital of the island.

"I shall also favor having all the French possessions in the West Indies put under one governor."

The question under discussion by the French Government now is, will they fully abandon Martinique or only partially. Of course everything in the northern part is covered with ashes from a few inches to many feet deep, vegetation is destroyed and there seems little likelihood for people in that section to be able to support themselves. The French Cabinet do not favor abandoning the island, yet they are taking every step necessary to do so in case the emergency arises.

MAKE KNOWN THE SITUATION.

The Minister of the Colonies, M. Decrais, cabled the following message to Governor L'Huerre of Martinique on May 22:

"Make known, if the situation seems to necessitate partial or total evacuation of the island, the means at your disposal, or those you may need."

Investigation as to the necessity of transferring the station is going forward as rapidly as possible. The various scientists and professors who have gone to Martinique went with a view of determining, if possible, the real danger, liability, frequency, etc., so as to give the people as near as possible the true status of affairs.

Dr. Jagger, the Harvard geologist, who went under the auspices of the Harvard University, said to a reporter while on his way to the West Indies:

"You ask me what is the interest and value from a scientific standpoint of the data afforded by the eruptions of Pelee and Soufriere.

"From a theoretic standpoint I am able at the present time to say comparatively little. From the newspaper reports practically nothing can be gathered of any scientific value regarding the causes of this terrible accident. I am, therefore, at the present time unwilling to commit myself to any extent by giving out an opinion of a theoretic character.

"The difficulties in the way of finding out any complete information about Pelee and Soufriere are considerable. Those volcanoes have not been observed in a scientific manner. The proper instruments and the proper spirit have not been present. I am going down with camera and instruments, and shall do what I can, but it is a pity that these volcanoes, about which so little is known, could not have been more carefully observed.

"On the humane side my object is to find out what I can as to cause and effect, in order to guard against such terrible loss of life in the future, not only in the Caribbean Sea, but in the Philippines, in Alaska and in other places where the same danger threatens. Of course, if we learn what the indubitable signs are of a volcanic outbreak, the word of warning can be given to the people in time.

"What I can practically do now, is to find out from the natives what occurred. The sooner I get there the better, for that purpose, but at the best the reports of the people cannot take the place of scientific observation. The Italian Government has established a regular scientific bureau to watch Vesuvius. Nothing similar to that, unfortunately, has been instituted in the Islands of the Caribbean."

"There are two general classes of volcanoes," said Dr. Jagger. "One is the type of Baudai-sau, a volcano in Japan. Volcanoes of this kind emit very little lava. Their eruptions are like the explosions of a steam boiler. The explosions are caused by the penetration of water to the heated rock, causing an excess of steam and a consequent explosion. The explosion comes when the steam pressure becomes too great for the rock to resist. This type is accompanied by little lava.

"The other type of volcano is of the Vesuvian type; in this case, there is a great flow of lava. This is a later stage, the last stage of an eruption, so that Vesuvius is of an old type volcano."

"To which of these two types," the geologist was asked, "do Pelee and Soufriere belong?"

"As I said before," Dr. Jagger replied, "we do not know very much about these volcanoes. But I believe that Pelee and Soufriere belong to the first class, the dry class of volcano. Perhaps they are a combination of the two classes, with the first, however, predominating. In that case, some, but not much, lava would be emitted. I am

not prepared to say whether the cause of this terrible disaster was lava or volcanic mud, but I am inclined to think it was volcanic mud; for these volcanoes, I believe, are of the first class, and are in what might be called the hot-water stage.

"The cause of volcanoes in general," the professor continued, "is supposed to be continental movements and sudden subterranean breaks. In the same way earthquakes are caused. Fissures are produced by these movements of the earth's substance, and through these fissures water penetrates to the heated rocks, causing the explosions. You must remember that this is hypothesis, and that I do not present it with absolute scientific certainty.

"A fact that bears out this general hypothesis is that volcanoes are mainly along the coast or on islands, where water may easily penetrate to the molten rock in case of fissures being formed by the movements of the earth's substance."

"If this is the case," the visitor suggested, "why might not New York or Boston, being near the ocean, be the scene some day of a terrible volcanic eruption?"

"From all we know," Dr. Jagger replied, "that is extremely improbable. It seems to be established that along our coast there is very little movement of strata; and where there is little movement of strata, and so few fissures, the opportunity of water penetrating to heated rock and causing explosive steam is very slight."

FORT DE FRANCE SAFE.

Professor Robert T. Hill of Washington, who has made a deep study of Mont Pelee, was invited by Admiral Servan on board the French cruiser T^{age}, Admiral Servan's flagship, and had an interview with him on his recent expedition to Mont Pelee, which lasted nearly three hours, and at which United States Consul Ayme acted as interpreter. Admiral Servan was deeply interested in what Professor Hill had to say.

Professor Hill said Mont Pelee might erupt for a year more, but that the area of devastation would remain unchanged. As all the people had fled from the vicinity of the volcano, no great loss of life would now occur. Professor Hill said Fort de France was perfectly safe.

ONE MILE OF THE CRATER MAY 28TH.

Mr. G. J. Kavanaugh, a newspaper man, on May 28th went within one mile of the crater. He accompanied Professor Hill part way up Mont Pelee, then they separated, Professor Hill going in a different direction.

GUIDED BY A NEGRESS.

Mr. Kavanaugh was guided by an aged negress to where an old footpath once led to Lake Palmiste, near the summit of the crater. There an iron cross twenty feet high was buried in ashes to within a foot of its top. Before him stretched upward the mountain slope, covered with ashes, which, soaked by the heavy rains and baked by the sun and volcano heat, looked like a cement sidewalk. The whole mountain top was shrouded in smoke.

Forgetful of the explosion of the previous night and the awful suddenness of the outbursts, and tempted by the seemingly easy ascent, he continued upward and made photographs and rough sketches. Mr. Kavanaugh found the valley filled with ashes, and two great rifts, which he was afraid to approach.

REALIZED HIS DANGER.

At 6 in the evening he turned back, reaching Morne Rouge at about 9 o'clock. He had made no new observations, and realized his danger only the next morning, when occurred the greatest outburst since Mont Pelee's first eruption.

Later Mr. Kavanaugh tried to descend to St. Pierre, but failed. He found a little hamlet, in a valley near the mountain, black with 150 dead bodies. They were not carbonized, nor had their clothing been burned off. Probably this valley lay near the inner edge of the zone of blasting flame.

ON THE EDGE OF THE CRATER, JUNE 1ST.

After repeated efforts Professor Angels Heilprin, the Philadelphia geologist; Mr. Kennan, the American traveler, and Mr. Varian, on June 1st ascended Mont Pelee, stood on the edge of the crater and

looked down on the incandescent mass within. Mr. Kennan, in writing about the awful trip, says:

"Five of us started for the crater of the volcano last Sunday, and three of us reached it. We crossed Lake Palmiste, which is now dry and full of bowlders and huge, ragged rocks. We then climbed on up and reached the edge of the crater. We found it to be a huge chasm, or crevasse, with perpendicular walls. We could not see down into the crater more than one hundred and fifty feet. It was like looking into a white hot furnace. The chasm opens out toward St. Pierre, but the enormous columns of steam cut off the view in that direction. There were hundreds of fumaroles all about us. What was thought to be a cone of cinders in the crater was learned in reality to be a huge pile of gigantic rocks. There were crusts of sulphur everywhere, but we saw no ashes or cinders in or near the crater. The whole vast bed of the old crater and of Lake Palmiste is emitting steam through thousands of orifices.

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ASCENT FULL OF PERILS.

"The ascent to Lake Palmiste is up a long and sharp incline, covered with ashes. These had been soaked by the rain, and as we proceeded there were terrifying gorges full of hot, volcanic debris on each side of us. Every footstep dislodged ashes and our footing was most insecure. There were also clouds of sulphurous smoke, through which the sunlight swept at intervals. The ascent was the most terrifying experience of my life, yet Professor Heilprin the previous day had sat enveloped in darkness on the lip of what was once Lake Palmiste, and had descended the horrible arete in a thunder storm of volcanic clouds and almost complete darkness."

MR. KENNAN'S TWELVE DAYS' TRIP.

The world was startled the last of May by a report that George Kennan, the Siberian traveler, had presumedly been swallowed up by the wrath of Pelee while on a trip of discovery and investigation. This information, which spread like wild-fire, caused the hearts of the American people to stand still and wonder what would come next, but, fortunately for the world, Mr. Kennan turned up safe, although

not perfectly sound, for he has passed through experiences that were enough to make the youngest gray. In his own words, we give the detail of his trip. He started out with a party of four, not including himself. He says:

"May 23 we went to Vive plantation, the property of Herman Clerc. Vive is on the River Capot, into which flows the River Fallaise from the new crater. Vive is in the new volcanic area, and our position there was dangerous. May 24 we went to Basse Pointe. On the 25th we went to St. Pierre and returned to Basse Pointe by way of Morne Rouge. Our party was the first to make this trip. We followed the old road to the point where the volcanic tornado had swept across it, and from there we followed down the track of the tornado. The spectacle here was truly appalling. There were numberless bodies on every side.

GET NEAR VIEW OF AN ERUPTION.

"On the night of the 26th occurred the great explosion of the volcano. All that day Mont Pelee had been vomiting masses of yellow, mud-colored vapor. We now know that this presages a serious explosion. We heard fearful detonations during the 26th, and huge columns of black smoke, alive with lightning-like and terrifying flashes, rose from the crater. One column, which rose to the height of a mile and a half, was lit up like fire from the fierce reflection of the incandescent mass within the crater. The population of Vive plantation became panic-stricken at the eruption and went to Acier, two miles farther away.

"Another enormous explosion occurred the morning of the 28th, and Vive was declared to be untenable. We all abandoned the plantation, and, taking furniture, bedding, and provisions, we went to Acier, which, from that day, was our base.

"The 29th we spent at Morne Rouge questioning eye witnesses of the catastrophe of May 8. The 30th we tried to ascend to the crater, along the Cale basse divide. From the crest of the divide we had a wonderful view into the awful Fallaise Valley, which was a tremendous, seething gorge of terrible volcanic activity. We were driven back by a severe thunder storm, and nearly lost each other in

the dense volcanic clouds. We planted a record stake at the highest point we reached on which we inscribed our names.

VOLCANIC CLOUDS ADD TO DANGERS.

"On the 31st we returned to Acier, and at 6:30 o'clock in the evening Professor Heilprin and Mr. Leadbetter came down from their splendid attempt to reach the rim of the crater. Professor Heilprin said he and Mr. Leadbetter had been enveloped in volcanic clouds and a thunder storm, and that they therefore did not reach the actual edge of the crater itself. I fully realized Professor Heilprin's danger the next day when we made the ascent.

"On Sunday, June 1, the five members of our party, Professor Heilprin, Mr. Leadbetter, Mr. Jaccaci, Mr. Varain, and myself, started to make the ascent. Mr. Jaccaci came down with the mountain fever on the Arete, and Mr. Leadbetter became exhausted. They did not reach the crater.

"We had a good time and a hard time both. The traveling was exceedingly rough, trying and fatiguing. The vegetation was loaded with ashes, which fell upon us at the least touch. We were often exposed to great dangers, but happily there was not the slightest accident."

HEILPRIN'S ACCOUNT OF JOURNEY.

Referring to his expedition, Professor Heilprin said to-day: "I left Fort de France with Mr. Leadbetter the morning of May 29, and reached Acier at 7 o'clock in the evening of the 30th. We visited Vive and Basse Pointe. The latter place has been entirely destroyed by the overflow of the local streams. Mud flowing into the beds of the rivers there caused this overflow.

The first ascent has already been described. Regarding the second Dr. Heilprin said:

JOINS WITH GEORGE KENNAN.

"At Acier we met George Kennan and his party and determined to attempt a second ascent the next day, June 1. The ascent made this day with Mr. Kennan was more trying and difficult than the one I had previously made with Mr. Leadbetter.



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MEMBERS OF THE FIRST RELIEF PARTY WHO VISITED ST. PIERRE AFTER ITS DESTRUCTION.

The city was still smoking and a good photograph was almost an impossibility, but this is sufficient to show how men braved death to search for the living, if any might be found.



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THE STORY OF MARTINIQUE'S AWFUL CALAMITY.

From a drawing as described by a survivor who visited the spot the second day after the catastrophe.

"The day was intensely hot and it was raining. When we reached the old crater it was again enveloped in vapor. The temperature of the basin of Lake Palmiste, taken three inches below the surface, was 124 degrees Fahrenheit. We reached the edge of the new crater, and from where we stood we could have dropped stones into the white-hot mass within.

"The new crater is a crevasse, running north and south and expanding into a bowl. This crevasse nearly rifted the mountain; it runs transversely to the old crater and might be called a huge gash. From it volcanic material has been freely erupted. The principal output of the crater, while we were there, was steam. The phenomenon was limited and was not essentially different from that of other volcanoes in action.

NO LAVA FLOWED FROM CRATER.

"Positive assurance was gained that no molten matter has flowed over the lip of the new crater. Several observations taken with the aneroid barometer showed that the height of Mont Pelee has not been changed. I agree with Professor Robert T. Hill, the geologist of the United States government, that Mont Pelee has erupted no lava and that there has been no cataclysm or any serious topographical alterations. No cinder cone was visible in the crater; what was taken for a cone is a pile of ejected rocks. Perhaps the bottom of the new crater may contain cinder cone, but we could see down only about 150 or 200 feet. I believe, however, that the crater is much deeper than this. I do not know the exact materials of which the pile of rocks in the center of the crater is composed; but it seems to be matter which has been ejected from the crevasse. This pile of rocks has no vent.

"I think Mont Pelee has freed itself from the interior pressure, and that the volcano is not liable to further violent eruption. It is not safe, however, to make predictions about volcanoes.

MONT PELEE HOLDS RECORD.

"The eruption of Mont Pelee of May 8 was unique in that it resulted in the greatest destruction of life and property ever known

by direct agency of a volcano. The phenomenon of explosion of flaming gases is probably new, but a careful study of observations is necessary before an opinion can be reached. The electrical phenomena are also new. For rapidity of action and for lives lost Mont Pelee holds the record among volcanoes."

AT EDGE OF SUMMIT.

Professor Heilprin remained at the summit for over two hours. When he returned to Vive he resembled a statue of mud. The weight of ashes and mud he carried on his person, the horrible atmosphere he breathed and the fearful difficulties he encountered reduced him to a condition of extreme fatigue, notwithstanding the fact that he ascended Mont Pelee from the most accessible and easiest side.

George Kennan and his party, who went to Morne Rouge, found, on their return trip, that a bridge across the road had been carried away by a torrent of hot mud. Negroes managed to get the party across the obstruction. They took the carriages to pieces and carried them and the members of the party to the other side of the river of mud, which was still hot.

PROF. HEILPRIN'S IMPORTANT DISCOVERY.

The professor made the important discovery that the crater at the head of the River Fallaise has synchronous eruptions with the crater at the summit of the volcano, and that it ejects precisely the same matter at such times. The River Fallaise crater and the crater at the summit showed during Professor Heilprin's visit a new phenomenon. Mud was thrown up in high columns. Heretofore the mud has bubbled or boiled out and flowed downward in huge streams. In the course of one eruption of the River Fallaise crater an enormous mass of intensely hot mud was ejected. This flow reached the rum distillery on the Vive plantation and extinguished all the fires there.

WONDERFUL AID TO SCIENCE.

The work accomplished by the men who risked their lives will do untold good for science and doubtless be the means of enabling the

governments to tell with a considerable accuracy what had best be done. Already confidence is being some restored.

DISCOVERER'S WARNING OF ERUPTIONS.

C. G. Borchgrevink, the explorer, one of the three scientists to visit St. Pierre, has gone to Washington to present his report to the National Geographical Society.

He said, when interviewed on the subject: "My going in an official capacity prevents me from saying much until after I have made a report at Washington, but I am at liberty to tell you that I have secured valuable data, which I think will enable scientists in the future to foretell when an eruption will take place."

The explorer, like many others, risked his life in an effort to determine when eruptions would take place. In speaking of the perils of the trip, he says:

"One day while walking around at the foot of the mountain a jet of steam came out of a place in the ground over which we had just passed. If it had struck any of us we would have been scalded to death, as it was the vapor blew all around us."

NEW U. S. CONSUL TO MARTINIQUE.

Already the United States is making plans to send a new consul to Martinique. President Roosevelt has found a competent man willing to undergo the dangers of another eruption of Mont Pelee in the Island of Martinique. He is John F. Jewell, of Galena, Ill. His nomination to fill the vacancy caused by the death of Consul Prentiss at St. Pierre was sent to the Senate June 4 and confirmed the same day.

Mr. Jewell's appointment is the result of his appearance before the Board of Officers of the State Department, for examination relative to his fitness to fill the vacancy caused by the death of Consul Prentiss. Mr. Jewell will be stationed at Fort de France, the new home of the American Consulate, and will begin the official discharge of his duties at once.

THE FUTURE OF ST. VINCENT.

The reports from the various scientists regarding Martinique seem to indicate that the inhabitants of the lower part of the island are safe, at least for the present, and that Fort de France is in no danger. With St. Vincent, however, it is somewhat different. The lava ejected is of a different nature, the ocean bed seems to be changing, and the eruptions still continue.

LA SOUFRIERE'S ERUPTION, JUNE 1ST.

An eruption occurred at 3 o'clock on the morning of June 1. It was accompanied by a thunderous noise and a shock of earthquake, while volumes of dense vapor ascended to such a height that it was visible from Kingstown. The vapor formed a thick cloud over the crater of the volcano and this cloud was illuminated as if by fire. In the crater itself the lightning was more vivid than upon any previous occasion. No damage was done and the eruption ceased at the end of an hour.

TRYING TO REACH SUMMIT.

The American scientist who started to ascend Soufriere is still striving to reach the summit. During the intervals when the volcano was quiet, June 29, he reached a point almost half way up the mountain. He reports to the awe of the inhabitants that the Island of St. Vincent may subside. There are clear indications, he says, that a considerable portion of the leeward district will subside. Owing to the continuous rain there have been heavy floods in the windward district of the island and many houses have been washed away or filled with mud. At Rabacca a large brick building was washed into the sea.

A visitor to the spot says: "It is almost impossible to convey any idea of the desolate appearance of the country beyond the fifteen-mile post; that is, fifteen miles from Kingstown and seven from Georgetown. The whole place looks as if millions of barrels of cement had been emptied over the land, covering every inch of ground with a coat of dismal gray."

A citizen of Kingstown writes, under date of May 22, saying: "I have just returned from visiting the leeward side of the island. La Soufriere is still very active. Lava is streaming into the sea, while clouds of sulphurous smoke, extending for miles, obscure the land and compelled us to steam seaward at full speed. We rescued 120 Caribs from Cura, twenty-five miles from here. We saw another crater, between La Soufriere and Chateau Belair, emitting stones, and also smaller vents elsewhere.

"The food of the peasantry is ruined and everywhere the island is blighted for fruit and vegetables. Cattle are being shipped to other islands for pasturage. The laborers in the sugar districts have killed their horses for food and are now dying from diseases of the intestines caused by the lava dust."

ANALYSIS OF LA SOUFRIERE DUST.

The West India Committee of London ordered a sample of the volcanic dust thrown out by the eruption of La Soufriere, Island of St. Vincent. A preliminary chemical examination made by Professor D'Albuquerque, results in the opinion that the dust when mixed with heavy clay lands might tend to improve the texture of the surface layers, although it has no fertilizing capacity. The dust is very minute, being almost like common flour, but of a grayish brown color.

Dr. Langfield Smith also examined the sample and found the dust to consist of volcanic minerals and glass, the former predominating. The minerals were chiefly silicates of iron and magnesia, there being also a considerable proportion of quartz and some potash and feldspar. He compared the volcanic iron with a sample of that which fell on the island in 1812 and found that the two differ greatly. The dust of 1812 was much finer and contained very few mineral crystals, consisting chiefly of dark brown volcanic glass. This is not encouraging to the agriculturist.

BRITISH GOVERNMENT REMOVES PEOPLE.

A dispatch to the Daily Mail from Kingston, Jamaica, dated May 15, says that Colonial Secretary Olivier informed the Legisla-

tive Assembly on Wednesday that the imperial government would probably abandon St. Vincent in consequence of successive catastrophes there and deport the entire population to British Guiana, Trinidad, and Jamaica.

OPINION OF THE JAMAICA LEGISLATURE.

When the Legislature of Jamaica contributed \$5,000 for the relief of St. Vincent, Secretary Olivier said it was not certain the imperial government would see the desirability, in the interests of the inhabitants, of evacuating the Island of St. Vincent. He knew Great Britain years ago considered a scheme for distributing the inhabitants among the other islands and thought the recent hurricane and present calamity should decide the course of the government.

PHYSICAL CHANGES IN ST. VINCENT.

Recent discoveries have been made regarding physical changes on St. Vincent resulting from the eruptions. Several fissures have been observed on La Soufriere. The estate of Walibou has disappeared and has been replaced by an inlet of the sea. Richmond, an estate adjacent to Walibou, which was formerly flat, and upon which there were several laborers' cottages, has been completely burned, and out of the estate there now arises a large ridge of ground. It is generally believed that the Rabacci crater, in the Windward district of the island, has also erupted.

CLOUD ILLUMINED BY FLASHES.

From a distance, La Soufriere, although less violent, still wears a cap of dark clouds, which is lumined every now and then by flashes of red light.

Volcanic dust falls daily, but fortunately there have been also several heavy rain showers which have washed away the dust from the grass and restoring verdure of the fields. The condition of the atmosphere is also apparently improving.

CHAPTER IX.

RUMBLING THROUGHOUT THE CARIBBEAN SEA.

**Volcanic Islands of the West Indies—Non-Volcanic Islands—Topography
Liable to Change Islands in which the United States are Interested—
Sinking of Ocean Bed—Interesting Speculations—Earthquake in Guatemala—Other Cities Damaged, etc., etc.**

It has been asked over and over again if there is danger of volcanic eruption on all the islands of the Caribbean Sea and the land adjacent, and if the earth's crust is really thinner at this point, as it has been suggested. We answer this by saying:

The thinness of the earth's crust throughout the zone of the Caribbean Sea and the territory adjacent seems to be proven by the recent rumblings throughout its vicinity. The long isthmus that bounds the west side of the Caribbean Sea and connects the continents of North and South America forms a volcanic belt marked by a line of volcanoes frequently in eruption, and seismic disturbances at one point or another along the belt are so common as to excite little attention except when of great severity.

On the eastern border of the Caribbean Sea volcanic eruptions and seismic disturbances have not been so frequent of late years, the volcanoes being either quiescent or apparently extinct, although occasional earth tremors suggest a possibility of sudden destructive outbreak.

NOT ALL OF WEST INDIAN ISLANDS VOLCANIC.

It has been stated that all of the West Indian islands are volcanic. This is not true. The Bahamas are coralline; the Greater Antilles (Cuba, Porto Rico, etc.) are composed of floating sediment bordered by coralline formations. The Windward Islands are in two parallel groups, the eastern being composed of lime and other sea-made debris, and the western group volcanic in origin. The latter are, in fact, parts of a chain of volcanic mountains rising out of the sea. Little more than the peaks appear above the water.

Some of these islands have only one volcanic peak upon them; others two or more, with connecting hills and valleys. The volcanic islands are Saba, St. Eustatius, St. Christopher (or St. Kitts), Nevis, Montserrat, Guadeloupe, Dominica, Martinique, St. Lucia, St. Vincent and Grenada. Between St. Vincent and Grenada are the Grenadines, a line of 600 separate rocks appearing above the sea.

ISLANDS IN WHICH THE UNITED STATES ARE INTERESTED.

Volcanic or earthquake disturbances in any one locality are likely to stir into activity other volcanoes, especially those belonging to the same group, and there is danger, therefore, of fresh outbreaks in all the islands named as volcanic. Other islands, such as Barbados, are near enough to be damaged by violent eruptions. Cuba, Porto Rico, the Danish West Indies and other islands in which the United States is especially interested are not likely to suffer, except, perhaps, from tidal waves, and we might add that unless the topography of the West Indies should undergo a great change.

TOPOGRAPHY LIKELY TO CHANGE.

The topography of the West Indian group may be entirely changed by these convulsions of nature, old islands disappearing and new ones taking their place. The violent explosions are supposed to be due to the breaking down of the thin crust and the admission of the sea to the intensely hot interior of the earth. Vast effects may be produced by such explosions. Twenty years ago the great craters of Krakatoa built up in a night a mountain eight miles in diameter to a height of two miles above the water. The accompanying explosions were heard at a distance of 2,000 miles. Tidal waves were sent around the world, and for months afterwards the atmosphere of the globe was so filled with volcanic dust that brilliant sunsets were produced here and in England. The force of volcanic explosions is not all directed upward, but profoundly affects the crust of the earth, leading thus to other explosions.

Some geologists hold that a continental body of land once occupied more or less of the area now covered by the Caribbean

Sea, and connected the Atlantic States of the American Republic to the northern shores of South America. When this land was submerged at some remote period, the summits of the mountains and high lands only remained above the waves, and these constitute the islands which make up the groups of a most extensive archipelago.

INTERESTING SPECULATIONS.

The revelations of geology as to the structure and probable history of the islands in question present material for most interesting speculations, and recalls Plato's remarkable narratives of the lost continent of Atalantis. In his books, entitled "Timæus" and "Kritias," Plato relates matters which he had derived from Solon, one of the celebrated wise men of Greece. Solon, in order to complete his education, had visited Egypt, then the repository of all ancient knowledge, and engaged in a course of study with the priests at Sais, who conducted a sort of university.

The information secured by Solon was to the effect that there had formerly existed a great island, or continental mass of land in the Atlantic Ocean, opposite the shores of Spain and Africa. It was inhabited by a warlike and enterprising people, who possessed great wealth and a high degree of civilization, and had many ships, in which they traded far and wide on the seas, and carried military invasion into other countries. The Atalanteans had carried on wars with the nations along the Mediterranean Sea as far as Greece, when, at a period described to be 9,000 years before Solon's time, the country of Atalantis began to suffer from earthquakes and volcanic eruptions, and, as a result of those terrestrial convulsions, the entire country sank out of sight in the ocean, leaving only those of the population who escaped in ships to tell the story of the destruction of a continent and possibly its millions of inhabitants.

No person who pretends to have any scientific knowledge believes that Plato's story is anything more than a mere creation of the imagination, and no more credence is given to it than is accorded by the great lights of the higher Biblical criticism to what they denominate the myths and fables of the Mosaic writings. Nevertheless, it is impossible to reject the geologic, the archaeologic and

the ethnologic evidences that there have been great changes in the conformation and locations of the continents, islands and seas on our globe.

There are vast continental areas of solid land which were once deep under the ocean, and doubtless there are seas now covering areas that were once dry land.

FORMING A CONTINENT.

Dr. Herbert E. Gregory, professor of geology at Yale University, in a discussion of the St. Pierre disaster, said that, in his opinion, later reports from the Island of Martinique would show, what has not yet been reported, that earthquakes preceded the eruption of Mont Pelee.

"Such earthquakes," said Professor Gregory, "almost invariably precede eruptions of this kind, and I believe such a condition will be found to be true of Mont Pelee. I surmise that there were a series of earthquakes, ending in a number of explosions in the volcano, and then a final bursting out of the main mass, which was so destructive.

"It is not likely that sea water had anything to do with the original explosion. The saturated rocks in the mountain itself must have burst into steam when the pressure was relieved. The whole top of the volcano was first blown off. Then the mass exploded in midair, falling in fire dust on the city, while mud and lava poured out of the orifice.

"It is quite likely that earthquakes will follow now in neighboring and sympathetic regions. The whole chain of islands in the Caribbean Sea is undergoing a change from island to continental structure, as is Japan. Earthquakes, volcanic eruptions, etc., will continue till this is completed. In time the whole chain will be a new continent, connected by land surface throughout."

BED OF OCEAN HAS SUNK.

Scientists have been particularly interested in the story brought from Guadeloupe, where a French cable ship that has been tak-

ing soundings in connection with the recent breaking of the cable has discovered that the bed of the ocean in certain parts has sunk to an enormous depth. Where the lead showed formerly a depth of 900 feet there is now a depth of 4,000 feet to be fathomed. This was at some distance from Point a Pitre, and it is argued by those who understand the configuration of the earth's crust and the formation of the islands that such a serious change at so great a distance from the scene of the two disasters—Martinique and St. Vincent—means that the volcanic agencies are likely to produce still greater changes in the West Indies.

MAY INVOLVE WHOLE OF ISLANDS.

The islands, from St. Vincent in the south to St. Thomas and even Jamaica in the north, form a continuous chain of volcanic craters rising from the ocean bed. These enormous chimneys penetrate through the ocean bed to the substratum of molten lava and elementary substances that is ever seething and boiling.

These islands resting upon submarine volcanoes, some of which are still active, are extremely beautiful, covered with a wealth of vegetation, producing great crops of tropical products, with an agreeable climate except in the hottest part of the year, with the brightest of skies and the bluest of waters. Science is powerless to tell, however, when some of the volcanoes will burst forth again.

EARTHQUAKE IN GUATEMALA.

Coincident with the brief cable dispatches reporting the fearful destruction of the City of St. Pierre, Island of Martinique, in the West Indies, came letter correspondence from Guatemala relating the details of the earthquake disaster in that republic on the 18th of April. A city and fifteen smaller towns were completely wiped out, while the dead were so numerous that their bodies could not be buried but instead were burned.

On the night of April 18, at the capital, a blinding flash of lightning, followed by a thunderstorm and torrents of rain, all in the space of a few minutes, caused the people in the streets to rush for

shelter. In an instant, however, an earthquake was upon them. Rushing frantically into the darkness and through flooded streets, anywhere away from the straining rafters and crackling walls, ran the multitude, crying, praying and a few trying to sing "Salve Regina."

The following shocks were less severe, and by 10 o'clock many of the inhabitants were wandering about, examining the walls of the cathedral of Santa Teresa, La Recollection and other churches which were more or less damaged.

News soon began to come in from the hill country, where Quetzaltenango is situated. This, the second city of the republic, suffered by far the most. Hundreds of residences and public buildings were either totally destroyed or seriously damaged. The very narrow streets, often not over three or four yards wide, and the irregular manner in which the town is built, served to make death traps of the houses, so that, although not half of the debris has yet been removed, fully 200 bodies have been recovered and many persons were badly injured. Fire, as well as flood, added to the horror of the night, with the result that many people have gone insane and others have committed suicide.

The sessions of the National Congress at Guatemala City have been suspended. The meetings of the national commission for the Louisiana Purchase Exposition were continued without interruption for two hours, though the shocks made the large crystal chandeliers swing like pendulums over the heads of the commissioners. Approximately 50,000 people have been left homeless, and public, as well as private, subscriptions are being raised to prevent the poor people from starving.

OTHER CITIES DAMAGED.

Death and damage to property is also reported to have resulted in the cities of San Marcus, San Pedro, San Juan Ostancalco, Tucana, Mazatenango and Cuyotenango. These cities have from 3,000 to 5,000 inhabitants each. Much damage was done on the coffee plantations and at the ports of Ocos and Champerico, on the Pacific.

NOT A HOUSE STANDING.

The land upon which Ocos stands was converted by the subterranean disturbance into a heavy sea of lava and ashes. The earth rolled up in three distinct waves, which still rear their crests where they stood when the convulsions ceased. Between each wave is a wide, deep crack, and the earth in every direction is seared by openings of apparently soundless depths. There is not a house in Ocos left standing on its foundation. The river banks were squeezed together and the stream is now twenty feet narrower than before.

The bed of the river gave up the ghost of a wreck that disappeared in the mud five years ago. The spot has long been pointed out as the grave of a sunken vessel, but there was no sign visible to indicate that it was still there. When the earthquake came and squeezed the river banks together it forced the wreck from the mud and returned it high and dry. The railroad bridge across the river was telescoped by the contraction of the banks, and the wharf, which was Ocos' pride, now stands a monument to the earthquake's ruthless strength, a misshapen mass.

LOSS OF 4,000 LIVES.

The City of Escuintla, capital of the Guatemalan province of the same name, was almost completely destroyed. The shock was only felt for forty seconds at Guatemala. At Escuintla the shock was felt for about two minutes and houses were cracked and destroyed, hundreds being buried in the ruins and struck by the falling timbers and stones.

The loss of life was variously estimated at from 3,000 to 5,000 in the City of Escuintla.

The City of Escuintla had a population of about 10,000 people before the shock, which cut ravines in the fields and shook many of the city's houses and buildings to wrecks. The greater portion of these were left homeless and in distress as a result of the shocks.

SCENES WERE FRIGHTFUL.

According to stories in San Jose after the earthquake the scenes in Escuintla and some of the other cities of that province which

suffered the most were terrible. The bodies of victims were being dug from the ruins of homes and picked up from the streets by soldiers and others. Carts were being heaped with dead, which were buried in trenches.

In San Jose, the capital of the central province of Guatemala, 1,000 buildings were destroyed by the earthquake and three people were killed. Travelers coming into the city reported that the railway had been much damaged and progress was delayed, for embankments had been badly cracked and rails spread in many places.

The stories of death and destitution were coming into San Jose from all sides before the Grafton sailed from there two days after the earthquake, the worst stories being received from Escuintla, which province suffered the most. The number of homeless in Guatemala as a result of the destruction caused by the earthquake was computed at 30,000. It is feared a famine will follow.

Esalco, the burning mountain in Salvador, has been extinct for ten months, and during that time there have been frequent earthquakes and tidal waves.

LETTER FROM AN EYE-WITNESS.

The following extract from a letter dated April 26th, 1902, from D. Ingle Burton, who was in Guatemala City, Central America, during the recent earthquake disturbances, is here reproduced:

"Since writing you the above there has been trouble in our peaceful land—trouble which has saddened the hearts of many and which has not even been so merciful as to spare the lives of hundreds.

"Last Friday all day long, and unlike most of days in this country, the earth was enwrapped beneath a great shadow of clouds which lolled around the mountain peaks, and the sun-kissed breezes of the tropics refused to drive away the unwelcome shadows from the flowery earth.

"The day passed by heavily and as evening approached the clouds increased in density; then thunder roared, lightning flashed and torrents of rain drenched Old Mother Earth; but this was not all that happened; before the storm cloud had passed, even before

the rain had subsided, Old Mama Earth, refusing to longer maintain her name 'Terra Firma,' got up like a lion from her peaceful slumbers and shook herself as though in defiance of the storm and deluge of water. The first shock lasted fifty seconds and was the hardest earthquake shock this country has had since the destruction of the old capital, Antigua, two centuries ago. The city of Quatzaltanango was the city to suffer the most, being almost a total mass of ruins. The first report we had from there was that three hundred people had been killed and a little later the number was doubled, and continued to increase as the extent of the awful calamity was more fully known, and now the number is said to be more correctly estimated at eight thousand.

"Thirty-seven distinct shocks have been felt, and the Volcano Santa Ana has broken out in eruption, emitting flame and lava, and it is said that the once beautiful city of Quatzaltanango on her sunny slopes, and now in ruins, is rapidly being abandoned by those who survived. It is said that the highways leading into the stricken city are in many places impassable, being cut to pieces by great cracks which extend down into the bowels of the earth. Quatzaltanango was a city of about 40,000 people.

"Other smaller towns in the western part of the country suffered in proportion, and much valuable country property was destroyed. Relief funds are being raised by public subscription all over the country and committees sent out to bury the dead and care for the wounded. It was an awful thing just to see how the buildings tumbled to the ground like cob houses into a mass of ruins, burying their inmates beneath the debris like so many rats.

"Business practically suspended all over the Republic and the government is suppressing the news as much as possible from going abroad, fearing that people hearing of this will be afraid to come to the country, but I consider this all nonsense, for such a thing is liable to visit any country. Don't we have cyclones in the West, and don't people go there? It is only a few years since St. Louis was almost swept off of the earth by a cyclone, and not many years ago Charleston, S. C., was visited by the greatest earthquake our present generation has ever known, and to-day these two particular cities are the most prosperous in America."

RETALBULEN, GUATEMALA, DESTROYED.

The town of Retalbulen, situated at the foot of Mount Tacona, in Guatemala, was buried under a mass of lava, stones, and ashes thrown from the volcanic crater, and 1,000 of its people perished.

Mount Tacona had been restless ever since the great earthquake of April 18, which destroyed the city of Quezaltenango.

For weeks a black pall of smoke hung over its summit and the glare from the crater frequently illuminated the sky. Many of the inhabitants of Retalbulen fled from their homes to places of safety.

When the eruption at last broke forth in its full fury showers of lava, ashes and stones were ejected and covered the country for miles around. The Bay of Champanico was a mass of floating pumice and ashes.

GREAT ANXIETY IN GUADELOUPE.

A report from Guadeloupe dated May 10 says that frequent thunderstorms visited the island and the people were panic-stricken lest their volcano would burst forth. The earth was trembling at Basseterre and volcanic rumblings were heard.

The mountains of Guadeloupe were shrouded in thick clouds and frequent heavy storms continued.

A NEW VOLCANO DISCOVERED.

Captain Hansen of the Norwegian steamship *Talisman* discovered May 13th a volcanic eruption, hitherto unreported, on Diamond Rock, an uninhabited little island about two miles southeast of Diamond Hill, the extreme southwest point of Martinique. The apex of the rock is 574 feet above the sea.

The *Talisman* drew near the rock before sunrise on May 13. Captain Hansen noticed a bright light near the top of the rock. He thought at first it was the searchlight of a warship. As dawn broke and the light was still glowing he decided that it was likely that refugees from Martinique were on the rock burning signals for assistance.

Captain Hansen steamed within 1,000 feet and noticed that the glow was from a hole in the rocks. While he was steaming closer



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DESTRUCTION OF ST. PIERRE'S INHABITANTS.

The above picture shows how the people were caught, killed and partially buried by the streams of molten lava as it rolled down to the sea.



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STRICKEN DEAD ON THE STREET.

Mont Pelée spared no one: the rich and the poor, the white and the colored, the grave and the gay, all went down together. The above picture, made from a photograph taken after the disaster, shows that the bodies were charred beyond recognition.

there was a great whiff of fire and smoke from the hole shooting down toward the sea, instead of skyward. It was like a puff from a big gun on a rampart. The outpour of fire and smoke grew worse, and the captain decided to get out of range and headed on his course.

TIDAL WAVE AT JAMAICA.

Two days before the disaster at St. Pierre the master of the British steamer *Grand Lake* reported that while the steamer was loading fruit at Kingston, Jamaica, Tuesday, May 6, the quays became flooded to the extent that it was impossible to take on the usual amount of cargo. The officers knew nothing of the disaster which befell St. Pierre until they reached Providence, R. I., May 13.

COLIMA VOLCANO AWAKE.

A message dated Guadalajara, Mexico, May 12, says: The Colima volcano shows strong indications of a great eruption, and the inhabitants living in the valley at its base are moving to a safe distance from the peak, from which smoke and puffs of flame have been belched forth for several days past.

Mont Colima has been showing indications of renewed activity for several weeks, and this threatening condition caused the work of constructing the extension of the Mexican Central Railroad to Manzanillo, passing near the base of the mountain, to cease temporarily.

The route of the Mexican Central extension will probably be changed in order to avoid any possible disaster that an eruption might bring.

MOMOTOMBO GRUMBLING.

A special dispatch to the Boston Herald from New Orleans, La., under date of May 14, 1902, says: Passengers arriving on the steamer *Breakwater* from Nicaragua report volcanic disturbances and earthquakes in that republic apparently connected with the recent similar disturbances in Guatemala.

The center of the disturbances was the old volcano Momotombo, which lies near the northwest end of Lake Managua, a continuation of Lake Nicaragua, and not far from the capital, Managu.

The volcano, which has never been entirely extinct, began smoking several weeks ago. Latterly it has been discharging showers of ashes, accompanied by great quantities of smoke, with a rumbling noise.

MONT SOCONUSCO ACTIVE.

A special to the New York Times from Oaxaca, Mexico, dated May 15, says: Reports received at the office of the Federal Telegraph Company in Oaxaca from various points in the southeastern part of the State of Chiapaz, show that the volcanic and seismic disturbances in the West Indies and Guatemala are being severely felt in that mountainous part of Mexico.

The volcano of Mont Soconusco, located in the State of Mexico, about five miles from the Guatemala border, has been showing strong signs of an active eruption ever since the recent series of earthquakes occurred in Guatemala and that part of Mexico. The volcano has an altitude of more than 7,000 feet, and a strong flow of lava from its crater would do great damage to the cultivated farms and homes which lie in the valleys at its base.

Smoke has been issuing from the old crater of Mont Soconusco for several days, and slight tremblings of the earth are felt at intervals every day.

SLIGHT EARTHQUAKES IN FLORIDA.

Almost continuous shocks, presumably of earthquake, were felt in St. Augustine from 9 o'clock until midnight on the evening of May 20th.

The earthquake was accompanied by a succession of short but decisive reports, like distant cannonading, seemingly from far out at sea. The sounds were unlike thunder, having no reverberating roll, and were accompanied by decided tremors, while the sky in the southeast was suffused with a glow.

The above disturbances indicate the sympathy existing between the islands of the Caribbean Sea and the mainland adjacent to the sea. Scientists are hard at work to find out, if possible, the real cause; also when repetitions are likely to again occur, and what the outcome will be.

CHAPTER X.

STORIES OF MARTINIQUE SURVIVORS.

No. 1 Story of the Destruction—No. 2 Story of the Destruction—A Cyclone of Gas—Story of an Officer on the Danish Ship Valkyrien—Pitiful Story of a Sailor on the Roraima.

I have been asked to close the West India disasters with a chapter devoted entirely to stories told by the survivors. As is usually the case in all great catastrophies, many stories are either exaggerated or highly colored, due to the excited conditions under which the people saw things or heard reports. Sometimes a dozen persons see the same thing, yet each in relating it will tell a different story, very much as it impressed or affected them at the time.

We have throughout the Martinique and St. Vincent matter prefaced the facts with such stories as bore upon the subject. Hence the best will not appear within the pages of this chapter but will be found in preceding chapters.

The following story by one of the crew of the Roraima is, I consider, excellent; it seems to be plain, concise and not overdrawn.

NO. 1—STORY OF THE DESTRUCTION.

C. C. Evans of Montreal and John G. Morris of New York, who were carried to the Military Hospital at Fort de France, said the Roraima arrived at Martinique at 6. As eight bells was struck a frightful explosion was heard up the mountain. A cloud of fire, toppling and roaring, swept with lightning speed down the mountain side and over the town and bay. The Roraima was nearly sunk and caught fire at once.

"I never can forget the horrid, fiery, choking whirlwind which enveloped me," said Mr. Evans. "Mr. Morris and I rushed below.

We are not very badly burned, not so bad as most of them. When the fire came we were going to our posts (we are engineers) to weigh anchor and get out. When we came up we found the ship afire aft, and fought it forward until 3 o'clock, when the Suchet came to our rescue. We were then building a raft."

STORY OF THE SHIP CARPENTER.

"Ben" Benson, the carpenter of the Roraima, said:

"I was on deck, amidships, when I heard an explosion. The captain ordered me to up anchor. I got to the windlass, but when the fire came I went into the forecastle and got my 'duds.' When I came out I talked with Captain Muggah, Mr. Scott, the first officer, and others. They had been on the bridge.

"The captain was horribly burned. He had inhaled the flames and wanted to jump into the sea. I tried to make him take a life-preserver. The captain, who was undressed, jumped overboard and hung on to a line for a while. Then he disappeared."

"Gus" Linder, the quartermaster of the steamer, who was horribly burned, confirmed this report.

Francisco Angelo, who speaks poor English, vividly described the onrush of the fire. He said the captain was a very brave man, too brave to be burned to death. Angelo further asserted that the storm of fire lasted not more than five minutes.

Joseph Beckels, a seaman fifty years of age and frightfully burned, said in weak tones that he was the last man to see the captain. The captain was then trying to reach a floating mattress.

Other men of the Roraima who were rescued were Salvador Aiello and Joseph Susino.

The cable repair ship Grappler was lost with all on board, as was the French vessel Tamaya.

The British steamer Roddam had anchored, but Captain Freedman, although horribly burned, managed to keep on the bridge of his vessel. Everybody on the Roddam's deck was killed instantly, but with the assistance of his third engineer and a fireman, who were wounded, the captain brought his vessel to St. Lucia. Many persons tried to reach the Roddam, but in vain. The United

States vice consul at St. Pierre, Amedee Testart, reached the deck of the Roddam only to fall back into the sea dead.

SEES A CYCLONE OF GAS.

From the Italian ship Teresa Lovico several men were saved, but in a frightful state, except Jean Louis Prudent of St. Pierre. Although on deck and unprotected he was little burned.

Prudent said there was first an awful noise of explosion and then, right away, a cyclone of smoke and fire, but such was the poisonous, choking nature of the smoke that it burned worse than the fire. When it struck people they fell dead. The cyclone of gas tore the masts out of ships, blew others up and sunk some of them. Soon afterward came a wave of fire bigger than the smoke cloud.

"That cloud," said Prudent, "was bigger, it seemed, than the mountain. The fire burned the city everywhere at once. Near me I saw only dead men, but on the shore I saw men and women rushing back and forth amid the flames. Then came that choking smoke and they dropped as though vitally shot.

"The explosion, smoke and fire all came and went in three minutes, but the city burned for three hours. Then every house was finished and nothing alive was left.

"Some men from the sinking ships got to the shore, but they were burned up there.

"At no time were there any earthquakes, but big stones were rained down and fire fell like rain for a long time."

SEES ST. PIERRE DESTROYED.

The following is the story of one who was aboard the Roraima:

"I saw St. Pierre destroyed. It was blotted out by one great flash of fire. Thirty thousand people were killed at once. Of eighteen vessels lying in the roads, only one, the British steamship Roddam, escaped, and she, I hear, lost more than half on board. It was a dying crew that took her out.

"Our boat arrived at St. Pierre early Thursday morning. For

hours before we entered the roadstead we could see flames and smoke rising from Mont Pelee. No one on board had any idea of danger. Captain G. T. Muggah was on the bridge and all hands got on deck to see the show. The spectacle was magnificent. As we approached St. Pierre we could distinguish the rolling and leaping of the red flames that belched from the mountain in huge volumes and gushed high in the sky. Enormous clouds of black smoke hung over the volcano.

FLAMES LEAPED HIGH IN AIR.

"When we anchored at St. Pierre I noticed the cable steamship Grapppler, the Roddam, three or four American steamers and a number of Italian and Norwegian barks. The flames were then spurting straight up in the air, now and then waving to one side or the other for a moment, and again leaping suddenly higher up. There was a constant muffled roar. It was like the biggest oil refinery in the world burning up on the mountain top.

"There was a tremendous explosion about 7:45 o'clock, soon after we got in. The mountain was blown to pieces. There was no warning. The side of the volcano was ripped out and there hurled straight toward us a solid wall of flame. It sounded like thousands of cannon.

"First Officer Scott was saved by one of the negro laborers, who hauled him into the steerage and held the door shut against the flames. I saved my life by running to my stateroom and burying myself in the bedding. The blast of fire from the volcano lasted only a few minutes. It shriveled and set fire to everything it touched.

"Thousands of casks of rum were stored in St. Pierre and these were exploded by the terrific heat. The burning rum ran in streams down every street and out into the sea. The blazing rum set fire to the Roraima several times.

"Before the volcano burst the landings of St. Pierre were crowded with people. After the explosion not one living being was seen on land. Only twenty-five of those on the Roraima out of sixty-eight were left after the first flash. The French cruiser

Suchet came in and took us off at 2 p. m. She remained near by, helping all she could, until 5 p. m., then went to Fort de France with all the people she had rescued. At that time it looked as if the entire north end of the island was on fire. The shores were covered with mud and fragments of stone. All the vegetation was burned away.

"When the Suchet steamed out of the roadstead the water was covered with dead bodies and debris that had been swept burning from St. Pierre. As we left Mont Pelee was still blazing and roaring and the Roraima was still on fire. Out of the twenty-five taken off by the Suchet three died on the way to Fort de France and several others died later."

STORY OF AN OFFICER OF THE DANISH CRUISER VALKYRIEN.

"We left St. Thomas the afternoon of May 9th. The next day, when seventy miles from Martinique, the falling volcanic ashes became troublesome. We approached the island and discovered St. Pierre to be burning. We made signals to the shore, but no replies were received. We then lay off for the night and witnessed a remarkable spectacle of fire and lightning. Ashes fell and detonations were heard.

"In the morning we saw the French cruiser Suchet and went nearer the shore. The ashes became dense as we approached and many dead bodies were floating on the sea. They were burned and swollen and floating in groups, in some cases, of ten. The hands were knitted and the limbs were cramped. Nearly all the bodies were those of white persons. As we approached St. Pierre we saw that the town was covered with ashes. We then joined the cruiser Suchet and the cable repair ship Pouyer-Quertier, and together went toward Le Précheur. The rain of ashes was heavy and shrouded the Suchet. Soon the atmosphere cleared up and we ran close to Le Précheur and then to Hameau des Sabines.

"The boats from all three ships were put overboard, and the rescue of people from the shore commenced at 11 o'clock in the morning. We were all covered with gray ashes, our eyes were weeping, and the heat was intolerable. Some of the negroes came

out to us in small boats; they were nearly naked, and some of them were laughing, while others were crying.

"Some of them carried chairs with them, while others brought dogs and kittens as all their property. Their woolly hair was thick with ashes. Several big pans on board our ship were filled with cooked food and placed on deck; they were soon surrounded by a crowd of chattering natives.

"The negroes were all saved by 4 o'clock in the afternoon, except a few who refused to leave the land. At this hour the Suchet signaled 'the operation is over; thank you.' The Suchet then steamed away in the direction of Fort de France. But our boats had not yet all returned to the ship; we were still waiting for the last one when there was a tremendous report from the crater of Mont Pelee, quickly followed by a second report.

"These explosions caused great excitement on shore and our last boat returned to us bringing the remainder of the negroes, including those who had previously refused to leave. They had been frightened by the reports, and, jumping into the sea, had swam out to the boat.

"We saved six hundred people from the north side, where, on account of the wind, there were not so many ashes. We take great pride in the fact that the Danish flag was the first foreign one at the scene of the disaster. We proceeded to Fort de France, and landed there the people we had rescued, as well as some provisions. At Fort de France a government official came on board the Valkyrian and thanked us all for what we had done. The Suchet returned to St. Pierre and secured the gold from the bank at Martinique. The coins had melted together.

"Yesterday, May 14, the officers of our ship attended mass at Fort de France, and we left there to return here the same day. We passed St. Pierre at noon. The British steamer Roraima was still burning; she appeared to be aground. Mont Pelee was still smoking, and the town of St. Pierre now resembles Pompeii. We saw a blackened wreck which we thought to be the cable repair ship Grappler.

"It is estimated that the volcanic dust from Mont Pelee was thrown seven miles into the air."

A SAILOR'S PITIFUL STORY.

"We experienced the greatest difficulty in getting into port," said James Taylor, a sailor on the Roraima.

"It soon became unbearably hot and I went on deck. All about was lying the dead and the dying. Little children were moaning for water. I did what I could for them. I obtained water, but when it was held to their swollen lips they were unable to swallow, because of the ashes which clogged their throats. One little chap took water in this method and rinsed out the ashes, but even then could not swallow, so badly was his throat burned. He sank back unconscious and a few minutes later was dead

"All aft the ship was afire, and from the land came draughts of terrible heat.

"I was caught in the receding wave, which was of tidal velocity, and was carried out to sea. Then on the return of the wave I was washed against an upturned sloop, to which I clung.

"A few minutes later I was joined by another man, whom I learned was Captain Muggah of the Roraima. He was in dreadful agony and kept begging piteously to be put on board his ship.

"Picking up some wreckage and a tool chest, I and five others who joined me succeeded in forming a rude raft, on which we placed the captain. Seeing an upturned boat, I asked one of the five to swim out to it and bring it over so that Captain Muggah might have an opportunity to live. The man succeeded in getting the boat righted, but instead of returning he picked up two of his countrymen and went away in the direction of Fort de France.

"Seeing the Roddam, which had arrived in port soon after we anchored, making for the Roraima, I said good-bye to Captain Muggah and swam to the Roddam. Before I could reach her she burst into flames and put out to sea. I finally reached the Roraima about half-past 2 o'clock in the afternoon, and later was taken off by the cruiser Suchet."

Samuel Thomas, the gangway man whose life was saved by Taylor, describes a woman who was burned to death while she held her baby in her arms, protecting it with her own body from the fire that filled the air.

CHAPTER XI.

LOOKING FOR THE END OF THE WORLD.

Religious Sects that See in the Martinique and St. Vincent Horrors the Beginning of the Total Destruction of the Earth—Bible Prophecies Quoted to Prove the Second Advent of the Messiah at Hand—Prof. Mangasarian Refutes the Idea That the World Is to Be Destroyed—The Race May Become Extinct—Hopeful Signs of the Times.

The news of the awful and ever-increasing tragedy of volcanic eruptions in the islands of the West Indies aroused the feelings of the whole world and became the subject of universal conversation. To the great mass of people the total destruction of St. Pierre appealed only as an awful catastrophe. They did not stop to reason as to its causes. They knew that fellow beings were homeless, wounded, starving. They put their hands in their pockets and let their money voice their sympathies. This was better in many ways than speculating on the date of the end of the world. In fact, the human mind has through ages of contemplation of nature's strange moods grown accustomed to the unexpected, and has come to regard these catastrophies which were once looked upon with different degrees of superstition with a quiet air of resignation. "I don't know," declares the agnostic, and that is a simple and easy way for the majority out of the labyrinth of doubt through which man has wandered since he came up out of a cave one morning to a sudden, if faint, appreciation of the beauty of the sunrise.

The scientist takes a different stand. Volcanoes, earthquakes, tidal waves, all these awful phenomena which were once believed to be the result of an angry God sending punishment on His helpless subjects, have been classified by students in this field of knowledge and are understood by them to have natural causes which are as far removed from passion or prejudice as the sunlight that is at once the cause and destruction of life. The professors are quite sure they know all about these phenomena and discourse learnedly on them from the standpoint of their adopted theory until some thinker

comes along who has strength enough to force a new theory upon the world and then the colleges begin all over again.

THE BIBLE ENOUGH FOR ADVENTISTS.

Not so with the true believers in the literal prophecies of the Old and New Testaments. There is no doubt as to the meaning of these disturbances in the minds of these ardent followers of the mythologies of the ancients and the poetical interpretation of them by the inspired Son of Galilee. They are certain the descriptions of the second coming of the Savior are intended for absolute fulfillment and look forward with a kind of cruel delight to the day when the heavens shall be rolled up like a scroll and the earth consumed with its own burning. Then the wicked shall all be destroyed while the righteous shall be led up into heaven out of reach of the flames. After a thousand years or so, when the earth has had time to cool off sufficiently for the purpose these few religious, if somewhat unsympathetic, souls will be sent back to inhabit it and live forever in peace and affluence. This is a beautiful dream—for the ones who escape—and has attracted a great many followers who are banded together under the name of Second Adventists, meaning those who believe in the second advent of Christ upon earth and the establishment of His temporal kingdom here when all the wicked shall have been destroyed.

To the members of this peculiar sect, as well as to many more Christians, and others whose superstitions are quite as charitable, if pagan, the convulsions of nature which have such terrible effects have a meaning that is certainly sublime in its poetic conception however far it may be from the real facts of existence. To them the voice of the volcano is the voice of God. In its fearful utterance they hear the words of the ancient prophets and in the flame and smoke and rivers of hot lava they see a personified Deity angry with His subjects laying the hand of chastisement upon a sinful world.

MARTINIQUE MEANS THE END.

So did these believers interpret this last calamity. The destruction of St. Pierre foreshadowed in their minds the greater destruc-

tion of the world at no distant day. Some became so imbued with the importance of their own vision that they set the very day for this incomprehensible conflagration. It did not shake their faith at all to find that some other prophet of the same faith had seen a different date in the stars and set a different time for the exhibition of these supreme fire-works. A few days more or less could make little difference to the spectators. There was no danger of any one missing the show when it came off. Everybody on earth would be there. And so the prophets went about declaring their belief in death and destruction as a sort of Fourth of July welcome to the second coming of the Man of Sorrows who was acquainted with grief and whose mantle of charity was broad enough to cover even the Magdalen of the street and the thief upon the cross.

In all the cities of the country the Second Adventists held meetings for the purpose of warning the people of the coming of the end of the world. That they were themselves fully convinced needs no further proof than their awed manners and the intense atmosphere of their meetings. They spoke in hushed sentences and offered up devout prayers under the breath. In the volcanic upheavals in Martinique they saw a terrible portent, sent to mankind to warn them that the end was near.

Beyond the few who pretend to special powers of divination the great mass of these sincere folk did not claim to know the exact date when this wholesale reward and punishment court should begin business. It might not be for a week, it might not be for a month, or a year, perhaps not for a decade or two, but they maintained the warning real and continued to offer supplications that the neighborhood, town or city in which they lived might be purified to make it ready for the end.

The Adventists held meetings almost every evening following the catastrophe for some time. The Sunday following the week of the first excitement all the pulpits of this denomination, by preconcerted action, echoed with lurid descriptions of the horrors of Martinique and anticipations of outbreaks in other islands which were only the beginning of the real convulsion that was to fulfill prophecy. The sermons of all ministers of this faith, as well as of many of other denominations were devoted to warning sinners of the awful

day of reckoning in store for all those who failed to believe, and to the contemplation of what they and their congregations consider to be positive proof and corroboration of their teachings.

PATHETIC SCENES IN THE CHURCHES.

The writer visited several churches of the Second Adventists in Chicago and found the same scenes being enacted in each place. The sermons pointed to the fearful calamity in the West Indies and recounted greater horrors expected throughout the world in the near future. Men, women and children on their bended knees, with sobs and tears, offered prayers to the Almighty to help them so live that they would be among those chosen to join the throng of celestial souls at the second coming of the Messiah. Hymns that represented funeral dirges for the lost and destroyed were sung with all the solemnity of a real performance and one could easily imagine the last day as it appeared to the sincere if mistaken people.

THE END NEAR AT HAND.

Several of the Adventist preachers declared that the world would undoubtedly come to an end in the present generation. This gave rise to immense zeal and fervor among the members of their congregations and while some simply reiterated the statement others endeavored to make more definite predictions and fix more certain dates. All of them, however, were united in the conviction that the Scriptural signs of the earth's end had begun in the West Indies and that the world is doomed.

It was pointed by several of the leaders in this community that fully a month previous to the Martinique disaster, during an assembly in Chicago of many members of this creed from all parts of the country, several men had predicted that the signs of the end of the world as set forth in the Bible would begin during the present month.

PROPHECIES THAT ARE FULFILLED.

It is a curious fact well worth noting that after every great catastrophe caused by an unusual disturbance of the elements that prophecies and predictions that were made some time before seem

to have been fulfilled or partially so. These are not always the prophecies of religious persons or fanatics, but sometimes have the sanction of science. A noted instance of this is the prediction of Professor Joseph Rhodes Buchanan in 1890. Writing in the *Arena* he says:

“Every seaboard city south of New England that is not more than fifty feet above the sea level of the Atlantic coast is destined to a destructive convulsion. Galveston, New Orleans, Mobile, St. Augustine, Savannah and Charleston are doomed. Richmond, Baltimore, Washington, Philadelphia, Newark, Jersey City and New York will suffer in various degrees in proportion as they approximate the sea level. Brooklyn will suffer less, but the destruction at New York and Jersey City will be the grandest horror.

“The convulsion will probably begin on the Pacific coast, and perhaps extend in the Pacific toward the Sandwich Islands. The shock will be terrible, with great loss of life, extending from British Columbia down along the coast of Mexico, but the conformation of the Pacific coast will make its grand tidal wave far less destructive than on the Atlantic shore. Nevertheless, it will be calamitous. Lower California will suffer severely along the coast. San Diego and Coronado will suffer severely, especially the latter.

“It may seem rash to anticipate the limits of the destructive force of a foreseen earthquake, but there is no harm in testing the prophetic power of science in the complex relations of nature and man.

“The destruction of cities which I anticipate will be twenty-four years ahead—it may be twenty-three. It will be sudden and brief—all within an hour and not far from noon. Starting from the Pacific coast, as already described, it will strike southward—a mighty tidal wave and earthquake shock that will develop in the Gulf of Mexico and Caribbean Sea. It will strike the western coast of Cuba and severely injure Havana. Our sister republic, Venezuela, bound to us in destiny, by the law of periodicity will be assailed by the encroaching waves and terribly shaken by the earthquake. The destruction of her chief city, Caraccas, will be greater than in 1812, when 12,000 were said to be destroyed. The coming shock will be near total destruction.

“From South America back to the United States, all Central America and Mexico are severely shaken; Vera Cruz suffers with great severity, but the City of Mexico realizes only a severe shock. Tampico and Matamoras suffer severely; Galveston is overwhelmed; New Orleans is in a dangerous condition—the question arises between total and partial destruction. I will only say it will be an awful calamity. If the tidal wave runs southward New Orleans may have only its rebound. The shock and flood pass up the Mississippi from 100 to 150 miles and strike Baton Rouge with destructive force.

“As it travels along the gulf shore Mobile will probably suffer most severely and be more than half destroyed; Pensacola somewhat less. Southern Florida is probably entirely submerged and lost; St. Augustine severely injured; Charleston will probably be half submerged, and Newbern suffer more severely; Port Royal will probably be wiped out; Norfolk will suffer about as much as Pensacola; Petersburg and Richmond will suffer, but not disastrously; Washington will suffer in its low grounds, Baltimore and Annapolis much more severely on its water front, its spires will topple, and its large buildings be injured, but I do not think its grand city hall will be destroyed. Probably the injury will not affect more than one-fourth. But along the New Jersey coast the damage will be great. Atlantic City and Cape May may be destroyed, but Long Branch will be protected by its bluff from any severe calamity. The rising waters will affect Newark, and Jersey City will be the most unfortunate of large cities, everything below its heights being overwhelmed. New York below the postoffice and Trinity Church will be flooded and all its water margins will suffer.”

The late Martinique disaster is strangely in line with Professor Buchanan's prophecy. There are yet several years before the time set for the final fulfillment of the catastrophes he enumerates. However, the Martinique and St. Vincent horrors are far beyond what his imagination suggested.

NOT IN ACCORD WITH SCIENCE.

The Adventists do not refer to Professor Buchanan in their present discussions. With them science and its researches has noth-

ing to do. They base their knowledge of the world, its birth, growth and ultimate end, altogether on the text of the scriptures. They deny the conclusions of Darwin and Heckle and all the modern thinkers. To them the theory of evolution is blasphemy, pure and simple. The world was made, according to Genesis, in six days, and man, instead of being an upward growth, is the descendant of Adam and Eve, two wholly perfect beings. The garden of Eden is to these people not a myth, evolved from the speculations of slowly developing humanity, striving to form some conception of its origin, but an inspired account of a literal fact.

It is wonderful how great is the belief of even the lay members of this sect. "My dear little boy," said a mother, kissing her child, that sat wide-eyed and wondering in a West Side congregation, "you will never know what horrors there are in this world and what great iniquity prevails here. Christ will be here before you will be able to know right from wrong."

PREACHERS PREDICT ANNIHILATION.

"Woe unto all evil doers," cried an aged man in the same congregation who declared he had been a believer since the movement first started in 1845 and had been expecting the end of the world to come ever since. "Slowly but surely the words of the Bible are coming true. The beginning of the end is at hand. There will be no escape for the sinner who does not turn his steps to righteousness. He will perish."

"Woe is unto all evil doers," said Christine Johnson, another member of the same congregation. "The rolling noise of the volcano should be like an angel's note of warning to the people of this city. Chicago is doomed, as are all other places. There will not be a stone left of the buildings here. Oh, it is horrible, but how inspiring for the good to know that the end is near."

The Rev. L. H. Christian, pastor of the Danish Seventh-Day Adventist Church, 269 West Erie street, Chicago, thrilled his hearers with predictions of the approaching end of all earthly things. The congregation gathered in small groups before and after the services and talked in low tones of the terrors that had begun to visit



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RAOUL SARTERET (Alias Peleno).

The above is a photograph of the prisoner found in the dungeon at St. Pierre. He was the only survivor of the disaster, and when found was semi-suffocated but able to tell the story of Mont Pelee's wrath and the burning of the Convent. (See page 48.) This photograph was taken after the disaster.



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VICTOR HUGO STREET, ST. PIERRE, IN RUINS.

On another page in this book is a picture of this beautiful street as it looked before the eruption of Mont Pelee. The above is from a photograph taken after the ruin. It shows the awful wreck of buildings and the remains of bodies charred and partially decomposed.



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RUINS OF THE AMERICAN CONSULATE, ST. PIERRE.

The above is a reproduction of a photograph taken after the destruction of St. Pierre. The remains of Mr. Prentis were identified and taken to Fort de France for burial. The remains of Mrs. Prentis were also found, but there is doubt as to the daughter's remains.

the earth, and of the certainty of the approaching end. Newspaper accounts of the Martinique disaster and the growing anxiety at St. Vincent and other places were read and re-read. The aged pastor explained to them the importance of the horrors from the standpoint of their creed, and many wept during his supplication to God to save the souls of all the faithful.

"Yes, we are sure that what are regarded by most people as natural phenomena of earthquakes in the West Indies are the forerunners and sure signs of the approaching end of the earth and the second coming of Christ," he declared at the close of the meeting. "The Bible tells us that mountains will level, islands will be submerged, the earth will tremble before the end. We believe that the beginning of this upheaval is now on. This earth will be smashed and completely returned to its chaotic state.

A NEW EARTH FOR THE FAITHFUL.

"All life will be extinct here and during the horrible transition from the present state to chaos death will reign. Christ will come accompanied by His celestial attendants, and will lead to heaven all who have loved and lived in righteousness for Him. After Christ's departure to heaven there will be 1,000 years of darkness and chaos without any life upon this earth, during which time the faithful and the saved will be in heaven. After this 1,000 years the earth will be brought back, not to its present form and condition, but to the state of Eden. We do not wish to work on people's emotions during these terrible catastrophes, but we want them to think and to realize the present proof of the scriptural teachings and of the sure end."

In another church at 269 West Erie street an old man, fired by the words of the preacher and the contemplation of the ruin and death in St. Pierre, with arms outstretched, loudly appealed to the people of the church to prepare for the inevitable end and pray and work to be worthy of meeting their Savior on His second coming.

"Let us ardently pray in this our church that more people may realize what is about to come," said he. "Let us arouse the city and set all the people herein aflame with a desire to have the priv-

ilege of being one of Christ's followers when He goes back to heaven."

When the minister offered prayer many cried. There were several converts and these were obligated not to use intoxicating liquor, tobacco or meat. They prayed and declared they were convinced that the end of the world is near.

SIGNS OF FURTHER DISASTER.

The Rev. G. Scholl, pastor of the German Seventh Day Adventist Church, 548 West Chicago avenue, in speaking of the attitude of the Seventh Day Adventists toward the horrors in Martinique, said:

"The scientists of Martinique, on the day before the horrible catastrophe, according to official and press reports, met and declared that all was well and safe at St. Pierre. The next day the hand of God was upon the place and their lips are now silenced as to their explanation. We firmly believe the trembling of the earth, the volcanic eruptions and misfortunes which are steadily growing, are sure signs of the coming end and are just what the Bible sets forth with reference to the approaching end of the world and the second coming of Christ. The Galveston disaster was likewise considered by us as a punishment meted out by God and as a warning."

Throughout the city the Adventists made a house-to-house canvass, asking people to read the Bible and come to their churches and homes in order better to realize what was coming and what should be done.

EARTH MAY BECOME UNINHABITABLE.

Believing that volcanic eruptions may render the earth uninhabitable, but, in contrast with the Adventist view, that a new race may result, the Rev. M. M. Mangasarian, preacher of the Independent Religious Society, said: "There have been earthquakes in the past far more extensive and destructive than those in the Island of Martinique. But great physical cataclysms succeed only in transforming the configuration of the globe—they have no power in either annihilating or creating matter. The earth may be so mod-

ified by these eruptions as to render human existence no longer possible thereupon, but the new conditions will bring forth new beings. It is also possible that all life may go out on our planet as it has on the moon, but even then the earth, like the moon, will continue to exist.

“Religious folk have always been inclined to observe in catastrophes the signs of the end of the world. The Armenian massacres were said to foretell the coming of Christ. The capture of Constantinople by the Turks, the fall of Jerusalem, the black plague in Europe, the Lisbon earthquake and the French revolution have all been turned and twisted to fulfill prophecy. But the world is still with us in spite of these Jeremiahs.

PREDICTION MADE MANY TIMES.

“Everybody in Europe believed once that the world would burn out on the last day of the year 999. The rich, frightened, turned over all their wealth to the church, but the year 1000 dawned as naturally as any other year. The rich regretted their credulity, but it was too late. Jesus’ description of a theatrical end of the world has influenced church people to exaggerate the importance of ‘omens and signs.’ Why should the second advent of Christ be announced by the destruction of human lives and property when peace and good will was the song which heralded His first advent? Ignorance and fear are ever partial to severe and cruel forms of belief.

“God is no more responsible for the earthquakes than He is for harvests—no more to be praised or to be blamed for the starvation of the stricken islanders or the plenty which dwells in our land than for the multiplication table. Earthquakes may come and earthquakes may go, but the world goes on forever.”

Martinique’s catastrophe supplied a theme for sermons in numerous Chicago pulpits for weeks following. The disaster was viewed from many standpoints, but to all who chose to discuss it before their congregations the thought was suggested that the universal awakening of human pity and generosity following the news from St. Pierre was a hopeful sign of the times. At a few of the

churches contributions were taken for the relief of the survivors, but the information that further aid than that already given was unnecessary had its effect upon this feature of the services.

PART OF NATURE'S LAW.

The Rev. A. Lazenby of Unity Church, Chicago, spoke in part as follows:

“No disasters seem to have a more appalling aspect or seem to make a more cruel sport of life than those produced by the earthquake or the volcano or the inundation. These are generally looked upon as the cruelties of nature. And there are some men who have sought to apologize for God—to take the blame from Him and lay it upon another. God, they say, is in the orderly changes of nature, which are accomplished without violence, but not in the rending crushing, destroying forces of nature. But it is impossible to separate between the orderly processes those which seem disorderly. They are all parts of the same great law. The causes which lead up to the one also lead up to the other. And we have to come to this, either no God at all, or one who can take the full responsibility of these things.”

GIVES PESSIMISM A BLOW.

In his sermon at Lincoln Park Congregational Church the Rev. David Beaton said in part:

“The overwhelming disaster of the West Indies, which has staggered the faith of some and hushed us all in awe before the might of elemental energies which seem to hold human life as stubble in the storm, has yet a silver lining to its darkness. The instant answer of the nations to the cry for help; the generous stream of pity and wealth that has leaped out of the hearts of the people, is of much more significance than the lava streams that spread physical death.

“After all, the pessimist has got a body blow by this revelation of a spirit of mercy and generosity, confined to no race or creed, in the spontaneous opening of the fountains of pity for the sufferers in this awful calamity. If there is anything that can reconcile us

to the dark providence of our age it is the sunburst of divine feeling which reveals the spirit of a universal brotherhood. It is surely no unworthy boast that America seems to hear most keenly and respond most generously to that cry. Is there not some moral connection between this national generosity of the American people and the commercial conquests which are arresting the attention of the European nations?"

MAN'S CONFLICT WITH NATURE.

At South Park Avenue Methodist Episcopal Church Dr. Henry Irving Rasmus took for his theme, "The Saving of a Remnant." After explaining the application of the text in the history of the Hebrews, Dr. Rasmus said:

"Consider these words in the light of the disaster which so recently thrilled and horrified the world. History is but one luminous commentary upon the fact that man is in one continuous conflict with the forces of nature. Our hearts pulsate with quickened beats as we think of the awful catastrophies of past centuries, but now, at the threshold of the twentieth century, occurs a disaster as terrible as any and at which the world stands weeping.

"In the presence of this terrible calamity there are some lessons to learn. What more magnanimous spectacle than the immediate relief voted by the great American Republic? No sooner has the frightful news startled the world than, by suggestion of our President, Congress appropriates a splendid sum for prompt succor. This is the characteristic of the American heart—instant sympathetic response to the suffering. Long live the Union to prove itself the good Samaritan among the nations of the earth!

"Let no one haste to say that this was a sudden visitation of divine judgment; rather it was an accident of nature. It will stand an illustration of the fact that so long as men persist in getting in the way of natural forces they must—sad as it is—abide the result.

"Men may hasten to declare that such disasters foretoken the final end of the world. With that event no one needs concern himself. The end of the world will come, sooner or later, to every man,

and there will be written on the wall in his death chamber the 'Mene, Mene, Tekel Peres' of reddening doom or there will open to him the gateway to eternal life."

HOPEFUL SIGN OF THE TIMES.

Dr. Joseph K. Mason of St. Paul's Universalist Church said in part:

"The universal sympathy awakened by this disaster is one of the most hopeful indications of our age, but what a pity it is that such humanity awaits so often the unusual occurrence like a volcanic eruption or earthquake to call it forth. There are the poor always with us, who would cease to be poor if men exhibited the same philanthropy toward them which they so nobly show the sufferers in some unusual visitation. Nevertheless, whatever serves to awaken the spirit of compassion is not in vain, not all a curse, though it may seem so to the unfortunate sufferers who claim our sympathy and prompt generosity."

Dr. Mason spoke also of the fact that there are not a few who look upon such events as evidences of the divine wrath for human sinfulness.

"Such views, however, are not in harmony with our present knowledge," he said. "On the other hand, the calamity of the few is really the salvation of the many. We know to-day that volcanoes are nature's safety valves, and if it were not for them the earth itself would be destroyed. Instead of wrath they indicate benevolence and loving care."

NATIONS ACT AS SAMARITANS.

The Rev. Frederick E. Hopkins spoke in part as follows at the Pilgrim Congregational Church in the evening:

"Men who ridicule the destruction of Sodom and the story of the flood, because the Bible reports such disasters, in this calamity have something to set them thinking, and it ought to lead them to revise their conclusions. It is also to be hoped that the responsibility for the dreadful loss of life will be placed not upon God but

upon the arbitrary Governor who, when even animals guided by instinct, were seeking a place of safety, compelled the people to remain.

"But, behold the kindness of the world. Within twenty-four hours of the horror the President of the United States, grandly ignoring all kinds of red tape, opens our treasury and to-day the relief ship is nearing the ill-fated island. The parable of the Good Samaritan is being enacted this week by all the great nations and the language of all is love. It proves how fully the spirit of Jesus rules the world."

Dr. Camden M. Cobern, of St. James' Methodist Church, drew a comparison between the destruction of Sodom and Gommorah and the disaster at St. Pierre. He said in part:

"Some may call one supernatural and the other a natural overthrow, but God is the real actor in either case. The natural is as divine as the supernatural. This raises the startling question, 'Can God be just, much less merciful, and cut down a city full of people like that?' God is just and merciful, but we cannot have the larger knowledge as to what is best, and perhaps do not have His thought of the meaning of life, suffering and death. It is a ghastly reproach upon Christian civilization that so many people seem to believe that afflictions are a sign of God's wrath for individual sin. On the contrary, Jesus taught that the Man of Sorrows was the king of men and most in favor with God."

The Rev. Mattison Wilbur Chase, pastor of Centenary Methodist Episcopal Church, preached upon "Lessons from the Martinique Catastrophe." He said in part:

"The desire of the age as expressed in all departments of endeavor is for stability, permanence, constancy. But let man do his best and still his structures are only temporary. Were we surviving witnesses of the awful spectacle the other day, when Pelee opened up its fiery depths and swept with its fury 40,000 of our fellows into premature graves we might find it easier to believe the revelation that one day 'the heavens shall pass away with a great noise, and the elements shall melt with fervent heat.' 'All things seen are temporal.' What is true of the material world is also true of the intellectual world. The science of any age consists largely

of those hypotheses which have not yet been disproved. The theory of to-day is continually giving place to the discovery of to-morrow. Upon what, then, shall we build our hope? The apostle gives the only satisfactory answer, 'The foundation of God standeth sure.' "

EVEN VOLCANOES TOO SMALL FOR THE BLIND TO SEE.

There still exists among many the tendency to ascribe to the supernatural those things that are so awful or unusual in their character that the human mind is not often called upon to contemplate them. That which is as plainly a manifestation of nature's laws as is the falling of an apple, is transformed by these conjurers into something strange and wonderful, usually indicative of the wrath of God at the act of some fly-speck human being. The rational, the reasonable explanation is ignored for the purpose of solving the problem in the most difficult way and giving to the event a weird and uncanny character that does not belong to it.

Such persons are trying to show that the volcanic eruptions that destroyed St. Pierre and other towns in Martinique were not the acts of nature, but the acts of an angry God, bent upon destroying an immoral people. Julius G. Tucker, former American consul at Martinique, says it is the old story of Sodom and Gomorrah. And Father Servais, a Montreal priest, who resided many years in Martinique, joins with him in the declaration that the destruction of St. Pierre was an act of divine retribution made necessary in the sight of God by the wickedness of the people.

Those whose faculties are not blinded by an unconscious desire to make God appear to be a monster more terrible than ever lived on earth in prehistoric times will not agree with this explanation. Rational men and women are more likely to believe that St. Pierre was destroyed because an active volcano happened to be in the vicinity. This volcano, like other volcanoes, has a habit of bombarding the earth with fire and lava at uncertain intervals. It does so in the performance of a natural function. When the great molten interior of the earth generates sufficient steam to blow the head off the mountain, the head comes off—and likewise the

heads of any unfortunate human beings or other animals that happen to be in the vicinity. It is not of record that a volcano has ever been a respecter of persons. No scientist has ever discovered that a volcano refrained from erupting because there happened to be a campmeeting in session at its base. Nor is there any reason to suppose that the volcano that destroyed St. Pierre would have varied its performance a particle if it had been surrounded with all the godly of earth instead of with a people whose morals had been made bad by ignorance and by a climate that God Himself gave to the island.

But the best assurance we have that our friend and others of his kind are wrong, is our belief that God is just and that He is not a monster. A just God could not have killed these 30,000 residents of Martinique as punishment for their immorality, because He does not treat the other immoral people of the world in that way. If sudden and violent death were the divine penalty for immorality, justice would require that it be inflicted on all—and we know that it is not.

CHAPTER XII.

LIGHT ON MYSTERY.

Home of the Volcano—Regions to Be Avoided—Asama's Vast Crater—Volcanoes of Iceland, South America, Central America, Alaska—Craters in the United States—Mt. Hood, Mt. Rainier.

Mont Pelee, Krakatoa, Bandaisan, Asama, Mauna Loa, Vesuvius! Why not say these titles are inscriptions on gigantic human graves, rather than names of vent holes of smothering Mother Earth?

Each name, after the geologists and quakeologists have all had their say, but stands for the blotting out of vast aggregations of humans—people who slept at night and in the dawn died under a rain of fire, ash and boiling mud.

Volcanoes are nature's steam boilers, as erratic and irresponsible under extraordinary high pressure as any tubular affair of man's inclosed in the sheathing of a modern locomotive.

The stationary boiler of the laundry that went skyward, taking seven human lives with it; the massive affair of the Lake Shore Road, which some years ago went sailing through the fresh air of a Sunday morning, carrying with it the lives of engineer and fireman, were but miniature Mont Pelees, but mock Krakatoas.

Yet men are still so far removed from understanding that warm, pulsating nature above and in which they live, that they gasp when a mountain head blows up and shudder when the sky rains bloody ash. Ignorantly, hopefully they build granary and vineyard under the shadow of craters and close to the vent holes of earth's steam chests and laugh when science cries "Beware!"

The world has had warning enough of eruptions and quakes to know, if it would heed, that whatever the actual inner condition of the earth be, eruptions and quakes are as certain to come as the sun after a storm. Within a radius of 500 miles of the very Mont Pelee region, now so afflicted, science records the following seismic events:

Six eruptions in the sixteenth century.

Eleven in the seventeenth century.

Seventeen in the eighteenth century.

Seventeen in the nineteenth century.

Has there been any reason to suppose that staid, sober, dark-hued Pelee would not sooner or later follow the example of her sisters of the volcanic belt that encircles the Caribbean and has one arm ending at Fuego and another in the arctic regions? Shall it longer be doubted that Atlantis sunk in such a cataclysm to make way for the now America?

Masaya vomited forth in 1522, Pacaya in 1565, Fuego five times between 1581 and 1623, Irazu in 1623, Momotombo in 1764, Quemado in 1785, San Miguel in 1844, Masaya in 1858, Ilopango in 1880, Ometepe in 1883. Bandaisan was silent for centuries, and Krakatoa. Yet all these have unquestioned intimate connection with the vents, the boiling mass of Pelee, the unfortunate.

Ciudad Vieja was engulfed by an earthquake in 1541, San Salvador in 1575, Antigua Guatemala in 1586, eastern Salvador in 1765, Cojuepeque in 1857, Amatitlan in 1862, Patzitsia in 1874—why not St. Pierre in 1902?

REGIONS TO BE AVOIDED.

A volcano and a volcanic region are good things to let alone—to keep free from permanent settlement. Zorion estimates (1891) that since earthquakes and volcanic eruptions were first recorded by man more than 13,000,000 people have lost their lives through them. The property damage inflicted at the same time can never be estimated. It must extend into the billions of dollars.

Take a map of the Barbadoes, Bermudas, the West Indies, Central America, and ask a geologist of note or a traveler of judgment where in the region there is freedom from volcanic action and quakes. He will rub his nose and ask for a larger map, and then, beginning at Terre del Fuego far to the south, make dots all the way north to Salvador, east to the Indies and west to the Pacific, and then north again through the Rockies and Sierra Nevadas to the Selkirks, and then on to the arctic regions, and he will say:

"All I have dotted came from the depths by volcanic action or quakes, and that it should return by the same action is not only not impossible but probable. If the earth is cooling within, the process so far has been so slow that cessation from quakes and eruptions must be yet a million years away.

"I confidently expect that the major part of the continents of the world, these United States, Asia, Europe, will be destructively altered over and over again before the earth reaches the last stage of solidity prior to again becoming gaseous."

FRIGHTFUL RECORD CITED.

If he is inclined to be loquacious he will hold up his fingers and begin to count and name:

"In Salvador alone, not far from Pelee, there are Tacuba, Apaneca, Santa Ana, Izalco, San Salvador, San Jacinto, Cojutepeque, San Vicente, Tecapa, Usulután, Chinameca, San Miguel, Conchagua, Chingo, Gussapa, Matarra, Cacaguatique, Gotera, Sociedad, all living volcanoes, all earth vents, of sufficient power when roused to make living mortals think the jaws of hell have opened for their reception. They are the warm, throbbing footstool of Mexico and the United States. In the United States, Hood is still smoking, and far to the north St. Augustine, which must have exploded ages ago, will certainly erupt in the years to come. Martinique has had its face changed, perhaps almost obliterated. Very well, why should not continents be thus changed? What did Bandaisan do?"

On July 15, 1888, Bandaisan, having slept for ages, hurled a cloud of flame and smoke to the Japanese sky. Then her head blew off, and sent, according to Professor Milne, sixteen hundred million cubic yards of rock and earth into the valley beneath.

Cut this lava into chunks each the size of an ordinary street car and the train furnished would have been long enough to have encircled the earth five times—125,000 miles.

As Mr. Moffett put it, if these fragments had been blown into great shells as large as the largest ship afloat, with a displacement of 15,000 tons each, they would, if floated end to end, have bridged the Pacific from San Francisco to Yokohama.

MEET AN AWFUL DISASTER.

When Bandaisan vented her wrath on the earth a river of agglomerate poured down the valley at the rate of forty-eight miles an hour, and in twenty minutes had spread itself to a depth of 100 feet over a region from twelve to fifteen miles long and from five to seven miles wide. If New York City had been in that valley, or Chicago, 90 per cent of the population would never have had time to escape. As it was only 401 persons lost their lives, because there were only 401 present when Bandaisan started her fun.

Bandaisan changed a Japanese landscape of green into one of brown, burying houses and fields. Where no lake had been one was created by the damming of a mountain stream. This lake grew so rapidly that the peasants in its vicinity abandoned farming and took to fishing. The bowlders which were hurled from the volcano weighed four and five tons each, and had been hurled eight and ten miles from the crater. Professor Milne declares they fell with the velocity of a falling star.

THROWS LIGHT ON MYSTERY.

The best explanation or answer to the question ever given was prepared by Professor John Milne. He said:

“The eruptions that build up mountains are periodical wellings over of molten lava, comparatively harmless. The eruptions accompanied with violent explosions occur irregularly and bring widespread destruction. It is easy to see in the building-up process how each streaming over of lava makes a mountain grow; each fresh outgush hardens as it pours, and forms a fresh shell of lava for other shells to form on.

“And, finally, when a certain height is reached—one, two, three miles—we may suppose the impelling force beneath no longer equal to the task of lifting this great column and the crater crusts over at the top; and so generations pass, and men, with their short lives and shorter memories, say that the volcano is dead.

“But the fires are there at the core, so much latent energy ready to be stirred; and if something stirs them it is like rousing a thun-

derbolt. The fact that the natural vent above is blocked with the coolings of centuries only makes the discharge the more terrible when it comes, just as hard-rammed bullets make powder more effective.

"The cause that rouses the volcano's latent energy is the same that makes a boiler burst—the sudden and excessive generation of steam when the hot part of the volcano comes in contact with water. This contact may be due to various causes, as, for instance, the readjustment of strata or materials beneath, so that a lake or water course is turned into the crater. It may even be due to an irruption of the sea, as at Krakatoa in 1883."

LAVA DOES NOT ALWAYS COME.

The professor was asked:

"Does molten lava never come out in one of these violent explosions?"

"Sometimes it does, sometimes it does not. It did in 1783, when Asama, a Japanese volcano, blew its head off, and the lava track may still be seen along the face of the mountain like a huge black serpent. But in cases like that the lava does not well out; it is driven out by the steam, just as rocks are driven out.

"When no lava comes out the mud river gets the liquid to make it flow partly from steam and partly from water it absorbs from springs and streams in its course. The mud river from Asama, for instance, lapped up two ordinary rivers as it went, so that no sign of them appeared thereafter.

"There are volcanoes in the world at present, in Europe, in the United States, in England, that will one day or another blow their heads off, although there is no telling when they will do it. England has at least a dozen basal wrecks of volcanoes, mostly in the western Highlands, regarded as extinct, but Bandaisan has shown us what 'extinct' volcanoes will do. An 'extinct' volcano is very much like an old rusty gun—it may be loaded."

Landgrelle, an authority, regards the explosion of Asama, Japan, in 1783, as one of the most frightful eruptions in the history of volcanoes. Asama rises to a height of over 8,000 feet, and in

its great paroxysm it sent down a river of mud from five to ten miles broad that overwhelmed forty-two villages.

In some places the mud was so hot it did not stop boiling for twenty-four days. In the Tonezawa River immense masses of lava remained red hot even in the river itself. In Kurogano a stone 120 by 264 feet, one among many, fell in a river and formed an island. Two rivers were sucked up into the mud torrent and their places taken by dry land, and the noise of the explosion was like a thousand thunders. The lakes were poisoned and fish sickened, the rivers were full of dead dogs, deer and monkeys, with hair singed from their bodies.

ASAMA'S VAST CRATER.

The crater of Asama as it stands to-day measures a mile and a quarter in circumference and never ceases to belch forth pungent, strangling odors of hydrochloric acid and sulphurous anhydride, to breathe which is to die. The depth of the crater as now constituted cannot be determined. It is supposed to be 8,000 feet to the bottom of its cup.

ECLIPSES POMPEII DISASTER.

The eruption of Vesuvius, by which Pompeii was destroyed, was a comparatively petty affair as compared with the performances of Bandaisan, Krakatoa and Mauna Loa. Mont Pelee and Soufriere, like the Krakatoa of 1883, have been obscure earth vents, but Pelee has taken more lives than Vesuvius and wrought more destruction. Its height is about a mile. It has thirteen children—Piton Pierreux, Piton, Pain-a-sucré, and so on. Thirty rivers are born on its slopes. The last great belch from it was in 1851. Soufriere of St. Vincent exploded in 1812 with much loss of life. It then formed a crater three miles in circumference and 500 feet deep. It is this crater that is belching forth destruction to-day.

It is probable after Pelee and Soufriere have worked their temporary end that it will be discovered their eruptions are but preludes to a greater explosion to come from some vent on some other part of the earth's surface. It would surprise no one familiar with

the vagaries of volcanoes to have a year hence, or maybe five or ten years distant, an explosion in Salvador so much greater than the two of to-day as to obscure their performances. Science will then say that Pelee and Soufriere but gave preliminary warning of a greater travail of Mother Earth.

Mont Epomeo of Ischia is one of the volcanoes of the world classified as extinct that was dormant 1,700 years and then exploded in 1302. Cosequina of Nicaragua cast forth such clouds of ashes in 1835 that utter darkness prevailed thirty-five miles distant and eight miles from the crater the ground was covered to a depth of ten feet. Some of the ashes fell at Kingston, Jamaica, 700 miles away.

Cotopaxi hurled a 200-ton boulder nine miles one summer's day. Mauna Loa belched forth a solid fountain of lava 1,000 feet wide and 900 feet high. The largest volcano in the western world is Popocatepetl, 19,643 feet high. Rainier, 15,000 feet high, is the largest volcano in the United States. It is "supposed" to be extinct.

THE STUDY OF VOLCANOES.

Scientists have dared death in its most appalling forms in order to study volcanoes actually at work, in the hope of snatching from them the secret of their being. Thus in the year 1767 Sir William Hamilton dared the terrors of Vesuvius in one of its most violent eruptions in order to question it in scientific fashion of its phenomena and their cause.

The volcano had been throwing out dust, scoria and gigantic "bombs" for months. It was hazardous in the extreme even to approach it. Yet so greatly did the scientific eagerness to know dominate Sir William's mind that he boldly went up the mountain to the highest point attainable. Fortunately for science he went on the day when the great outburst of lava occurred, and at fearful risk to himself he saw what happened.

SCIENTIST'S DEED OF DARING.

"On a sudden, about noon," says Sir William, "I heard a violent noise within the mountain, and at a spot about a quarter of a



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ALL THAT REMAINED OF THE CONVENT, ST. PIERRE.

The above picture, from a photograph, shows the ruins of the Convent in St. Pierre and the dead lying under the wreckage. For the story of suffering and death see page 49.



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RUINS OF THE CATHEDRAL OF ST. PIERRE.

The above picture shows all that is left of the once beautiful Cathedral at St. Pierre. It will be remembered that this is the church where 3,000 people fled for safety but were destroyed.

mile off the place where I stood the mountain split; and with much noise from this new mouth a fountain of liquid fire shot up many feet high, and then, like a torrent, rolled on directly toward us. The earth shook at the same time that a volley of pumice stones fell thick upon us. In an instant clouds of black smoke and ashes caused almost total darkness; the explosions from the top of the mountain were much louder than any thunder I ever heard, and the smell of the sulphur was offensive. My guide, alarmed, took to his heels, and I must confess that I was not at my ease. I followed close, and we ran nearly three miles without stopping. As the earth continued to shake under our feet I was apprehensive of the opening of a fresh mouth, which might cut off our retreat. I also feared that the violent explosions might detach some of the rocks off the mountain of Somma, under which we were obliged to pass; besides the pumice stones, falling upon us like hail, were of such a size as to cause disagreeable sensations."

STUDY OF CAUSES.

Besides such risky study—including the late Professor Palmieri's daring life residence near the lip of the crater—science has prosecuted other and laborious researches into the causes of volcanic action. Careful calculations have been made to determine where the heat might come from, until we now know almost exactly how much rock must be pulverized by pressure in order to produce the temperatures of 2,000° to 3,000° Fahrenheit, which have been found in the craters.

Yet we do not know to-day with any sort of certainty or satisfaction what it is that causes volcanic action. There are many scientific theories, but each of them has been challenged by scientific criticism which apparently it cannot endure.

For ages it has been recognized as a giant chimney, built by the actions of subterranean fires. Likewise these chimneys have been associated always with contiguous salt water. As to the conditions which control these chimneys giving vent to the fires of an under world, speculation has been rife for a thousand years. In general, superheated steam under the earth's crust is regarded

as the active agent in a volcanic eruption. With most volcanoes, active or extinct, standing in proximity to sea water, the connection of steam with the phenomenon has been easy. Accounting for the subterranean fires has been the task.

HOME OF THE VOLCANO.

Taking the map of the world, one sees the margins of the Pacific as well as its mighty bed to be the home of the volcano. All down the eastern coast of Asia and extending out into the tropical islands of the south Pacific is a continuous chain of volcanoes, active within recent times; across the north Pacific, from Alaska to Kamschatka, are the craters in the Aleutian Islands, forming almost a bridge over the Pacific, and from Alaska down the western coast of North and South American continents is a string of the mightiest volcanoes in existence. Iceland is a seething caldron under its eternal snows, and in a hundred places where some great, jagged cone of a volcano rises, seemingly dead and lifeless, only a firebrand in the hand of nature may be needed to awaken it to a fury like that of which its vast lava beds, pinnacles, and craters are so eloquent.

In general, those volcanoes which have had longest periods of rest between eruptions have been most violent, and as a rule those cones sending out ashes are of the worst type. The theory of a long quiescent volcano breaking out with such renewed force is that the vent in the crater becomes choked by cooling rock until, when some sudden burst of steam forces an eruption, the whole top of the cone may be blown away.

VOLCANOES OF ICELAND.

As to the extent of an eruption of a great volcano, Skaptan Jokul, in Iceland, in 1783 made one of the world's records.

The eruption began on June 11 of that year, having been preceded by violent earthquakes. A torrent of lava welled up into the crater, overflowed it, and ran down the sides of the cone into the channel of the River Skapta, completely drying it up. The

river had occupied a rocky gorge, from 400 to 600 feet deep and averaging 200 feet wide. This gorge was filled, a deep lake was filled, and the rock, still at white heat, flowed on into subterranean caverns. Tremendous explosions followed, throwing bowlders to enormous heights. A week after the first eruption another stream of lava followed the first, debouched over a precipice into the channel of another river, and finally, at the end of two years, the lava had spread over the plains below in great lakes twelve to fifteen miles wide and a hundred feet deep. Twenty villages were destroyed by fire, and out of 50,000 inhabitants nearly 9,000 perished, either from fire or from noxious vapors. The Skapta River branch of this lava stream was fifty miles long and in places twelve to fifteen miles wide; the other stream was forty miles long, seven miles broad, and the range of depth in each stream was from 100 to 600 feet. Professor Bischoff has called this, in quantity, the greatest eruption of the world, the lava, piled, having been estimated as of greater volume than is Mont Blanc.

MOUNT HECLA.

Mount Hecla stands isolated and snow clad about twenty miles from the southwest coast of Iceland. Its principal crater when visited by Sir George MacKenzie was about one hundred feet deep, and contained a large quantity of snow in the bottom. There are many secondary craters near the summit. The sides of the volcano are broken by numerous deep ravines, forming channels for mountain torrents produced by the melting of the snow. The view from the summit is very desolate and wild. Fantastic groups of hills, craters and lava, leading the eye to distant, snow-covered jokuls; the mist rising from a waterfall; lakes shut in bare, bleak mountains; an awful and profound slumber, lowering clouds; marks all around of the most destructive of the elements, give to the region a character of desolation scarcely to be paralleled. No wonder the Icelandic sagas are grim and their gods terrible! The old civilization of Iceland has preserved the record of the eruptions of Hecla since the tenth century. Of these there have been forty-three, always very violent and generally continuing for a

considerable time. One of the most tremendous occurred in 1783, when the immense quantity of lava and ashes ejected covered a large extent of country. The internal fire remained active and was quiescent till September, 1845, when with a great noise it again burst forth and continued active for more than a year. It poured forth a torrent of lava which two miles from the crater was a mile wide and forty or fifty feet deep, and the fine ash eruption fell on the Orkneys, four hundred miles away.

EFFECT ON ICELAND.

Iceland, as one of the hotbeds of volcanic energy, has in a marked manner the ills that come upon a district from volcanic eruptions. Hecla has been known to be active a period of six years at a time. While throwing out fumes, and solids, the people of the island contiguous to the volcano have verged upon starvation. Their principal supply comes from their fisheries and from their cattle. As to the fishing, it is practically destroyed because of the vast amount of hot lava that is discharged into the sea and because of the activity of boiling springs which pour hot water into the neighboring ocean.

As for the cattle, they suffer in a most peculiar manner. The ashes and pumice stone are thrown to great heights and settle in great clouds upon the pastures. Aside from this making the grass tasteless, the cattle, in trying to eat in pasture, take the ashes and fine pumice into their mouths. This cuts the enamel from their teeth, finally leaving the brutes in such misery that they cannot eat the grass that is there for their sustenance, and they die of slow starvation. On many occasions Denmark has been called upon to aid the Icelanders in such emergencies.

DANGERS AT HOME.

Though in the geologic minute or second during which white men have lived in the United States there have been no great volcanic catastrophes such as have overwhelmed districts of our neighbor, Mexico, there are volcanoes in the United States. Though they are supposed to be extinct, history has proved that the term

"extinct" is only relative; that cones which for ages have seemed dead suddenly have broken out with all the furies of the under world. Etna, for instance, had been classed as active in the Odyssey, while for a thousand years before 79 A. D. Vesuvius had been regarded as extinct. In that year it burst forth in a manner to force the story of it to the end of history. In the years in which Vesuvius was quiet the volcanoes on the Island of Ischia, forming one of the arms of the Bay of Naples, and known to have belonged to the Vesuvian chain, were active; after the stupendous outbreak of Vesuvius in 79, however, these volcanoes slumbered for 1,700 years. To all appearances they were extinct, when, after all these centuries, they became active again.

With reference to these volcanoes and this volcanic district, other vents were open in this 1,700 years, and earthquakes were of frequent occurrence. This would tend to show that the volcanic conditions were still in existence and more or less potent. To-day, speaking of extinct volcanoes, those of the Andes in South America seem to be most certainly of this class. But no one in the scientific world to-day has the temerity to say just where is the volcanic cone that is dead past all awakening.

CRATERS IN UNITED STATES.

Regarding the volcanoes of the United States proper, Mount Shasta is one of the most interesting of them. It has an altitude of 14,350 feet, towering more than a mile above its nearest neighbor. Four thousand feet of its peak are above timber line, covered with glaciers, while the mountain's base is seventeen miles in diameter. Shasta is almost continually showing slight evidences of its internal fires.

Another of the famous cones is that of Mount Hood, standing 11,225 feet, snow-capped, and regarded as extinct as a volcano. Other peaks are Mount Baker, Mount Rainier, Mount St. Helens, Mount Adams, Mount Jefferson, Three Sisters, Mounts Mazama, Scott, Union, Pitt, Lossen Peak, Spanish Peaks, and Mount Taylor.

As to the volcanic records of the great West, they may be read in the great chains of mountains that stretch from Alaska, 10,000

miles to Terra del Fuego. In the giant geysers and hot springs of the Yellowstone Park are evidences of existing fires in the United States, while as to the extent of seismic disturbances of the past, the famous Lava Beds, in which Captain Jack, the Modoc chief, held out against United States troops till starved into submission, are volcanic areas full of mute testimony regarding nature's convulsions. These lava beds are mazes of intricate passages in the rocks, formed by the processes of cooling and settling.

In general the Mississippi Valley is not interested in vital ways concerning the volcano or its earthquaking accompaniment. It is conceded that the Valley of the Mississippi had its experiences with molten lava long before recorded time, and the glacial drift has buried most of it hundreds of feet below the level of the city of Chicago. In the Lake Superior country, however, in the copper and iron deposits of the region, are to be found the evidences of volcanic heat among the rocks. Thus, lacking anything approaching a vent or cone the valley of the great river may be regarded as fairly secure from a possible eruption, however little the modern scientist claims to know of the phenomena.

Concerning the possible eruption of one of our own volcanoes, Mr. H. T. Cleveland writes as follows:

"I stood one morning on the summit of Mount Hood, some 11,000 feet above the sea's level. Hood is a volcano, not extinct, although long silent—so long that on the cascades about her the pine trees have risen for ages and the whole valley and gorge to Portland is a mass of verdure and bloom. An Italian friend with me commented on how much more beautiful the scene was than at Vesuvius, and I made the half-jesting remark:

"No lava will ever again disturb this spot."

Our half-breed guide looked at me incredulously, and when we began our descent called attention to the rings of sulphur smoke rising from what I suppose would be called the 'mother crater.' We drew as near to the edge as we dared and laid down, and a throbbing within the bosom of the peak was distinctly heard. It might be described as the sound of a far-away train coming through the hills with a continual roar of effort.

"Some day," said my friend, "Hood will lift her crown of

snow and hurl it into the distant ocean ; she will fill this gap through which the Columbia cuts and create an inland sea ; she will shower fire and destruction on Portland and the towns of this green valley, and the survivors of that day will wonder why they never thought of such horror before."

OFFERS BRILLIANT SIGHT.

Perhaps he was right. The same was said of Pelee years ago and has come true. But we descended into the valley and we came to Portland, and from City Park we looked back to the beautiful head of Hood, pink in the sunset, and my imaginative companion exclaimed :

"I should like to stand here when that day of fire comes and witness it—and escape."

Scientists hold to the opinion, though, that St. Augustine in the Alaskan region is much more likely to blow its head off before Hood or Rainier do. If we can trust outward signs it is several thousand years since Hood or Rainier spoke, but St. Augustine is always in a state of disturbance, and recent seismic shocks in her vicinity would indicate that the pressure is growing too great for her and that she will within near time blast out the present physical features of her region and make new outlines.

As to the West Indies group, scientists agree that fire and quake originally created them, and that the convulsion also formed the Caribbean Sea, gave Florida a lusty leg and heaped up Salvador and the Central American chain. Resting as these regions do on gases and fire, built up on thin crust, close by where waters of ocean and internal fires of earth may meet, it is not unreasonable to believe that within early time (as earth-making goes, a century or so) all that has been there will not be.

ASHES IN UNALASKA.

It seems only natural that while there are volcanic disturbances in the West Indies there should be similar happenings in Central America. What is felt in the islands might well be felt in the ad-

jacent mainland. The coincidence need occasion no alarm. It is a little bit different, however, with the trouble at Unalaska. Unalaska is one of the Aleutian Islands. It is about 7,000 miles from Martinique. It is far enough away to deserve exemption from the effects of that catastrophe in the underworld which has wrought such havoc on the surface. It seems, however, that for some time the westerly winds have brought to Unalaska a deposit of fine ashes, as if from a volcano. Also, the island has been itself shaken by earthquakes. One can hardly believe that the eruptions in any part of the world of late have been great enough to send ashes to any unusual distance. The deposits in Unalaska were made before the eruption in Martinique. It must be that some volcano in northeastern Asia has been roused to exceptional activity. It is true that when in 1883 the Island of Krakatoa was broken to pieces by a discharge of volcanic matter the ashes were carried all the way around the earth and resulted now in a kind of continuous twilight and again in sunsets of extraordinary beauty. It is not known, however, that previous to the present Martinique disaster there had been during the last few months any eruption that could have so stupendous an effect. The phenomena at Unalaska are probably caused by disturbances purely local. A volcano in Kamshatka could well send ashes along the Aleutian Islands. The way in which Sahara dust travels up into Norway proves that. If, then, there is a renewal of volcanic activity in northeastern Asia, the question presents itself whether there is any connection between the volcanoes of that part of the world and the volcanoes of the West Indies. If the right answer to this question is the affirmative, people who are living in the intervening districts are rather directly concerned. If the monster forces of the interior of the earth have a kind of rendezvous from which they issue now to this and now to that aperture, the dangers of a general convulsion are largely increased. An earthquake, however, is one of the things about which one need have no fear. It does no good to anticipate the thing. When it comes it comes, and measures of prevention are yet to be discovered. Besides, the chances are some thousands to one against its coming.

CHAPTER XIII.

VOLCANOES—THEIR CAUSE.

Volcano Mountains—Formation of Craters—What Precedes Eruptions—Pacific Ocean Bounded by Volcanoes—Matter Ejected from Volcanoes—Distance Ejected—Nature of Lava—How Lava Moves—Gas and Sulphur and Poison Ejected.

The causes of volcanic eruptions are set forth by Sir Robert Ball, the eminent scientist, as follows:

“The internal heat of the earth derived from the primeval nebula is in no way more strikingly illustrated than by the phenomena of volcanoes. The evidence has proved that under the extraordinary pressure which prevails in the earth the materials in the central portions of our globe behave with the characteristics of solids rather than of liquids.

“But, though this applies to the deep-seated regions of our globe, it need not universally apply to the surface, or within a moderate depth from the surface. Whenever the circumstances are such that the pressure is relaxed then the heat is permitted to exercise its properties of transforming the solids into liquids.

FORCED THROUGH EARTH'S SURFACE.

“Masses of matter near the earth's crust are thus, in certain circumstances and in certain localities, transformed into the fluid or viscid form. In that state they may issue from a volcano and flow in sluggish currents as lava.

“There has been much difference of opinion as to the immediate cause of volcanic actions, but there can be little doubt that the energy which is manifested in a volcanic eruption has been originally derived in some way from the contraction of the primeval nebula.”

CONICAL SHAPE TO VOLCANOES.

The lava, scorix, and ashes which are thrust out of a volcanic crater form highly inclined and more or less regular beds on the surface of the mountain, extending from the crater mouth to vary-

ing distances down the sides of the volcano, gives the uniform conical outline to volcanoes without the terraces or breaks which are found in almost all other mountains. The sides are often furrowed up and down by straight, narrow ravines, which increase in number toward the base. These are produced by the action of running water obtained from rain or from snows which melt in the heat of an eruption. The rapidity with which floods rush down the steep sides of a volcano gives a prodigious force to the water, which the loose scoriæ and ashes, and even the solidified lava of old eruptions cannot resist. When the torrent is not water, but a molten mass of mineral, the force of its rush is inconceivable, and it is the most terrific manifestation of the power of natural forces which is ever seen by man.

VOLCANIC MOUNTAINS.

It is now believed, however, that the bulk of a volcano is not all due to the matter ejected from the crater. Before the crust of the earth yields to the pressure of the masses beneath and breaks, there is a great bending upward, such as a mole makes as he burrows along just beneath the turf. The result is a smooth-sloping mound. Imagine now in the top of this mound a hole finally formed, up through which rush the imprisoned and swelling masses of molten rock. On a small scale the force tearing its way up is represented by a bullet going through a tin can. The force of the bullet not only tears a hole but also bends the tin outward. The area thus bent up may be a mile or five miles in extent—certainly not a factor to be neglected in considering what created the mass of a volcano as we see it.

The grayish color of volcanic mountains is produced by the ash and scoriæ, which, though in composition the same as the dark lava, have this lighter color from the minute division of their particles. When a particular series of rocks remain on the surface, and are not covered by the products of more recent eruptions, they weather and decompose and produce an extremely fertile soil, which is speedily clothed with vegetation, and thus change the whole aspect of the once bare and uniformly colored mountain. It is this same

richness of soil which attracts men to volcanic slopes, and from this soil springs the wealth of the cities which now and again in the world's history are overwhelmed by the very force that gave them life.

FORMATION OF CRATERS.

The crater or vent through which the materials thrown up by a volcano are vomited is a more or less circular opening, communicating with the subterranean source from which the materials come. Generally a crater is much lower on one side than on the other—lower on the side from which the prevailing wind comes, since the wind carries with it the showers of ashes to the opposite side of the mountain. In many cases the cone is truncated or cleft, a wide hollow of immense extent, and often of great depth occupies the summit, and in the base of this great cup the crater is situated. The Spanish name *caldera* is technically applied to these hollows. Their origin has been the subject of considerable controversy. Von Buch and others maintain that they are craters of elevation; that is, that the rocks were originally spread out in nearly horizontal deposits and then upheaved into a dome-shaped mountain, with the hollow caldera in the center of its summit. The more satisfactory explanation is that the original cone, formed by the alternate deposition of the lava and ashes ejected from the crater, has, from the great heat of the molten lava rising in the tube of the volcano, or from gaseous explosions, given way and fallen in. This tube is conceived as going down for miles through the crust of the earth. During eruption the pressure upward through it forces up the mass of materials, which forms the mountain. This pressure ceasing, the matter in the tube sinks back just as mercury falls in a thermometer, and as it goes down the mass of material at its mouth falls back into it, and so the caldera is formed. The cones both of Aetna and Vesuvius have frequently fallen in and been reproduced. In 1822 the summit of Vesuvius was reduced by eight hundred feet. The immense size of some calderas is adduced as being opposed to this theory.

That of the Island of Palma, one of the Canaries, is from three to four geographical miles in diameter, and the precipices which

surround the cavity are from fifteen hundred to two thousand feet in vertical height. They form an unbroken wall, except at the southwestern end, where a deep gorge permits the passage of the torrent which drains the caldera. But even here the precipices are traversed by numerous vertical dykes, and exhibit all the appearances which would be produced by the falling in of the huge summit. This must have been a volcano beside which the largest of to-day would be as a pop-gun to a cannon. It belonged to another order of things, when the earth was newly a globe and intensely hot. Its eruption must have been more like those of the volcanoes of the sun than like the earthly eruptions of our time. How else was this vast vent ever plugged save by the mighty summit sinking back into it?

In eruption the pressure of incandescent lava often forces for itself a passage to the surface before it reaches the mouth of the crater, and this is more frequently the case when the volcanic eruption is accompanied by earthquakes. Immense vertical fissures are found radiating from the center of the volcanic action, reaching the surface of the ground, and even rising to the summit of the mountain; these being filled with the molten rock, which in course of time solidifies and forms often a large portion of the mountain mass, as is shown in the Val del Boré on Aetna. The lava sometimes pours out of these fissures instead of rising to the crater. This phenomenon is expressed with the vividness of a keen eye-witness by Palmieri in the phrase, "Vesuvius sweated fire." These fissures, however, were very small. In 1783, during a terrible eruption of the Icelandic giant Hecla, a prodigious stream of lava flowed from a lateral crevice, moving slowly down the mountain side. In forty-two days it reached a distance of fifty miles. Then it split into two streams, one of which ran forty, the other fifty miles further toward the sea. Its depth varied from six hundred to one thousand feet; its greatest width was fifteen miles. The amount of lava poured into this stream would almost equal Mont Blanc in bulk.

TABLELAND OF MEXICO.

The power which exhausts itself in the eruption of a volcano often shows itself by changes which it produces in the level of the

country round. In the eighteenth century a volcano appeared in the center of the great tableland of Mexico and raised an area of nearly four square miles five hundred and fifty feet higher than it was before, covering it at the same time with conical hills of various heights, the highest of which is Jorulla, sixteen hundred feet high.

DESTRUCTION OF LIFE IN JAVA.

On the other hand, a subsidence sometimes takes place. One of the most terrible of all the great natural catastrophes occurred in Java in 1772, when a great part of Papandayang was swallowed up. The inhabitants of its declivities were suddenly alarmed by tremendous noises in the earth, and before they had time to retire the mountain began to sink and soon disappeared. The area that thus sunk down was fifteen miles long and six broad. No day of judgment painted by Angelo or Doré could ever match that actual horror of the solid mountain sinking into the earth with human beings on its slopes—its huge bulk going down as a ship goes down into the deep.

WARNINGS OF ERUPTIONS.

A volcanic eruption is generally preceded by rumbling noises and slight movements in the earth; then fitful puffs of gases and steam are given off. These warnings were given for weeks by Mont Pelee, but the authorities of St. Pierre heeded them not. The Italians, whose recorded knowledge of Vesuvius covers centuries, are more ready to take such a warning, and the Observatory on the volcano is supplied with instruments not less accurate than a barometer, which give timely warning of approaching eruptions. The gaseous puffs just mentioned contain much sulphur, and some volcanoes, among them probably Mount Pelee, give out such quantities of carbonic acid and other mephitic gases as to destroy the animals in the neighborhood. Sometimes such gases issue from fissures in volcanic soil remote from actual volcanoes. Such a spring of deadly gas is the scene of the death of Ernest Thompson-Seton's "Wahb." Such deadly spots give rise also to the story

of the upas tree whose leaves are supposed to give off poison. After these preliminary jettings of gas, the eruption itself of a volcano begins with the ejection of the finest dust, which is hurled up high into the atmosphere, where, taken up by air currents, it is often carried to enormous distances. In 1845 the dust from Hecla was in ten hours thickly deposited on the Orkney and Shetland Islands; the ashes from Consequina fell, in 1835, on the streets of Kingston, Jamaica, seven hundred miles away, and during the same eruption the fine dust covered the ground to a depth of over ten feet at a distance of thirty miles to the south of the volcano. During or after the eruption of Krakatoa in 1883, probably the greatest eruption known to man, dust and mud were deposited thickly over an enormous area. Remarkable atmospheric effects in Ceylon, South Africa, Brazil and elsewhere were attributed to the presence in the upper atmosphere of dust from this source; and in the United States deeply colored skies before sunrise and after sunset, months after the eruption, were held to be due to the same cause. The imagination cannot conceive the immensity of the air-space filled by this dust from a comparatively tiny spot on the surface of the globe. Sediment left on windows after rain and snow in Europe, on the other side of the earth from the place of the eruption, was chemically tested and found unmistakably to contain volcanic dust. Into the lungs of perhaps every human being on the earth passed some tiny particles of the materials thrown out of this Pacific volcano.

In many descriptions of volcanic eruptions we read of flames issuing from the crater, but what seems to be flame is usually only the reflection of the glowing lava emitted from the crater upon the clouds of vapor and ashes.

LAST MATTER EJECTED IN VOLCANOES.

In a volcanic eruption the last matter to be ejected is the lava and the scorix, which are simply the cakes and flakes of molten matter cooled and hardened by contact with the air. Sir William Hamilton says that in 1779 the jets of liquid lava from Vesuvius, mixed with scorix and stones, were thrown to a height of ten thou-

sand feet, giving the appearance of a column of fire. As we have pointed out in the chapter on the eruption of Krakatoa, the column from that volcano was many times higher than any that ever rose from Vesuvius. From a distance this column looks as the Arabian story-teller conceived the genii which rose from the fisherman's pot in the form of a mighty column of smoke which touched the sky. The mind of man in early times would very easily conceive this pillar as a great creature about to take human form. The imagination itself projects that form into such a mass, just as one sees fantastic shapes of whale and weasel in ordinary clouds.

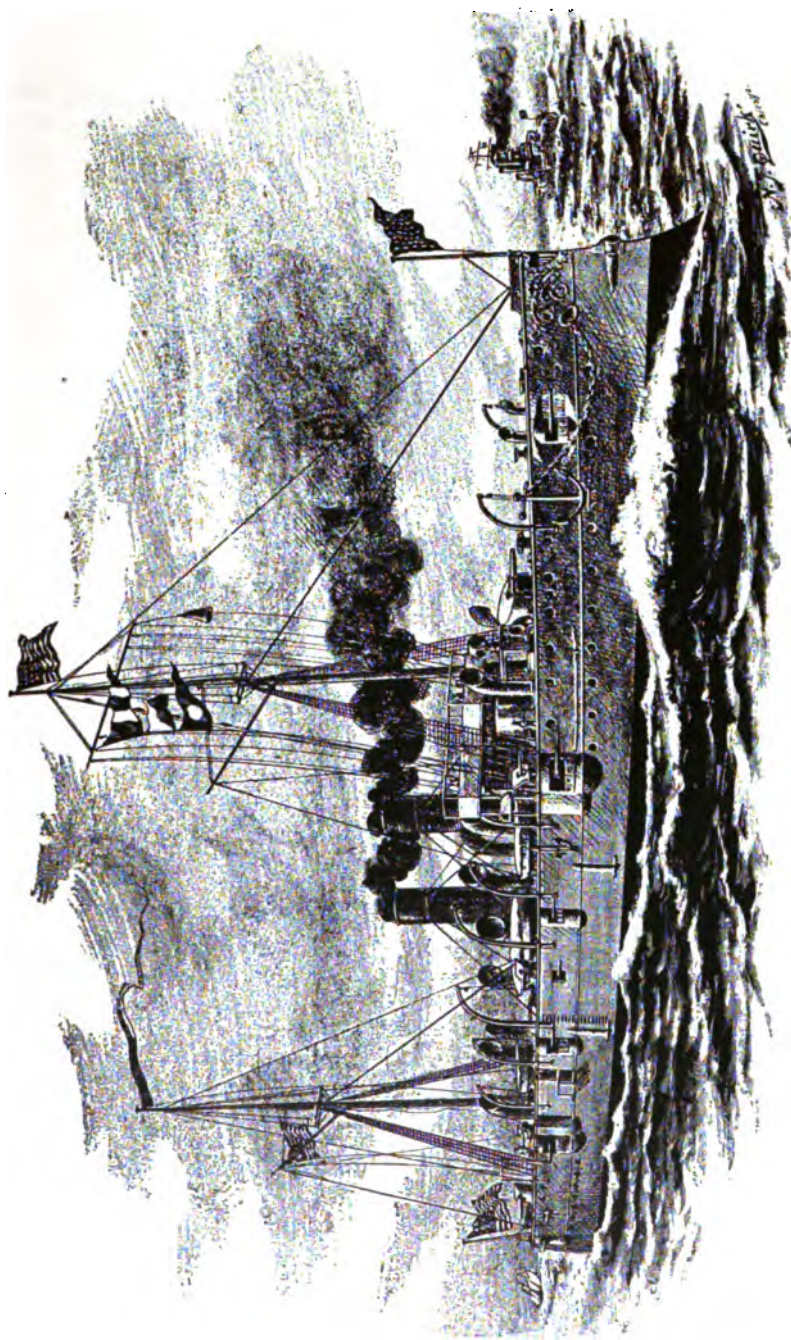
Very often the lava does not rise as high as the mouth of the crater, but bursts through the mountain itself, burrowing under it, as it were, and making for itself great rents. It pours forth in a perfectly liquid state, bright and glowing white hot, with a splendor which is only equaled by the sun. At first it flows rapidly, but as its surface becomes cooled and converted into slag this outer covering of solidified matter greatly retards its speed. It is due to this phenomenon that the people of Catania, under Etna, have been able to watch for days the approach of a stream of lava toward their city, and even to take artificial measures to turn the creeping monster from its path. The hot and liquid lava has to burst out of its solid coating before it can continue its progress, and the liberated liquid lava when it does burst forth bears on its surface masses of scorix which look like the slag from an iron furnace. By breaking in the coating on the side of such a stream it is possible to draw from the main stream a great part of its substance, thus changing the original direction of the flow. But they who do this must endure terrific heat, protecting themselves with skins and working with long hooks. In general liquid lava follows the same path as it would if it were so much water, seeking ever the lowest places. It is this fact which keeps the Observatory on Mount Vesuvius from being overwhelmed when the rivers of fire burst forth.

SCIENTIFIC BOOKS.

The mineral and chemical constituents of the various materials ejected by volcanoes have been carefully studied. Much valuable

information of this technical nature and on the causes of volcanic action will be found in Professor Judd's book, *Volcanoes: What They Are and What They Teach*. It is rather striking in reading the various scientific books on volcanoes and earthquakes to see how purely intellectual the point of view of the writers is. In a great volume on Krakatoa, for instance, the fact that thirty-six thousand human beings were destroyed is treated in half a paragraph, the chemical structure of ejected materials is treated in forty pages. Scientific knowledge has a more human side, however, in the Observatory of Vesuvius, whose instruments are not merely designed to give understanding of volcanic action, but also to give timely warning to endangered districts.

The theories propounded to account for volcanic action are divided into the two great classes, chemical and geological. Sir H. Davy suggested that if immense quantities of the metallic bases of the earths and alkalis were present in the interior of the earth, all the phenomena would be produced by their oxidization from contact with air and water. The author of the theory afterward abandoned it, but it has been taken up and advocated by Daubeny and others. Bischof, assuming that the interior of the earth consists of a highly heated and fused mass, considers that the mechanical action of water, converted into steam by the great heat, would produce volcanic action. Both theorists seek support for their views from the fact that the great majority of volcanoes are situated on or near the seacoast. Geologists also accepting the doctrine of internal heat, and believing that at a certain depth the rocks of the earth are, partially, at least, in a state of fusion, explain volcanoes by considering them as connections established between the interior of the earth and the atmosphere, the elastic force of steam being the propelling power. From observations made in all parts of the world, Darwin believes that volcanoes are chiefly, and, indeed, almost only found in those areas where subterranean motive power is forcing or has lately forced upward the crust of the earth, and are invariably absent in those where the surface has lately subsided, or is still subsiding. The conception is vaster than appears from this simple statement. That mind which of all men's was most patient in collecting exact data and most fruitful of generalizations



Copyright, 1902, by L. G. Stahl

U. S. CRUISER "CINCINNATI"—FIRST RELIEF VESSEL SENT TO ST. PIERRE BY THE U. S. GOVERNMENT.



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A MOTHER'S LOVE.

This picture tells the pitiful tale of a mother's brave effort to save her child from Mont Garou's awful fury—Both were found dead by the husband, who falls prostrate, his life and that of an elder child's having been spared.

as brilliant and also as solid as diamonds enables us to conceive the whole vast inner mass of the planet, slowly and ponderously moving, swaying ever so slightly in proportion to its mass and yet enough at times to raise the continents and sink the sea-bottom. We venture to add an image which may aid in the conception of the earth and its volcanoes. Pressure upon the inner mass of the earth must come from all sides as the crust cools. Something has to get out somewhere, and it will of course come out where there is least resistance. In a flat country where the great layers of sedimentary and fire-formed rock lie level and unbroken, the squeezed interior matter cannot escape. The least resistance will be found in general along the line of those giant precipices which lift themselves from the deep sea bottom all about a continent, and in the great foldings of the earth called mountains which lie, as a rule, along sea coasts. We would compare the force which ejects matter from the depths of the earth out through a volcano's vent to the squeeze a boy gives a rubber ball filled with water. The water squirts out in a stream comparable to that which pours from a volcanic crater. If instead of a local pressure applied by the boy's fingers to his ball we imagine the rubber surface to contain in itself some force that makes it shrink and then imagine certain rows of very tiny punctures through which the water is forced we have a very rough parallel to what in our opinion is called volcanic force.

PACIFIC OCEAN BOUNDED BY VOLCANOES.

As Darwin proved, volcanic action is limited to particular regions of the earth and in these regions it has been noted that the active vents are distributed at intervals, and are generally arranged in lines. The Pacific ocean is bounded by an almost unbroken line of volcanoes. Beginning in the New South Shetlands, where there is an active volcano, we pass to Terra del Fuego, and then on to the Andes, which are throughout their whole course volcanic, although the centers of present action are confined to Chili, Peru, the neighborhood of Quito, Guatemala, and Mexico. The line is continued northward by the line of burning mountains of northwestern America, and the Aleutian Islands carry the chain across to Kamchatka

on the Asiatic side. Here turning southward the line may be traced through the Kurile Islands, Japan, Formosa, the Philippines, Moluccas, New Guinea and the Saloman and New Hebrides groups to New Zealand. From Celebes, a branch proceeds in a northwesterly direction through Java and Sumatra to Barren Island in the Bay of Bengal; and even beyond this we find a region in northern India subject to earthquakes, which may lead us, on the one hand, to the volcanic region of Tartary, or, on the other, through Asia Minor to the Greek archipelago, Sicily, Naples, and on to the Canaries and Cape de Verd. According to the geological theory, the lines thus traced over the globe represent rising lands, where the crust is less strong and so less liable to repress the expansive powers below. There are a number of isolated volcanoes also scattered over the surface of the earth and sea. No one can say how far back we must go to find the cause of their location where they are—to what accidents even as far back as the swirling nebula which was the raw material of the now solidified earth. These isolated volcanoes are supposed to have opened a star-shaped communication with the interior. The most remarkable of these isolated volcanoes are Jan Mayen, those in Iceland and Mount Erebus in South Polarland.

ACTION OF VOLCANOES.

The action of volcanoes embraces all the phenomena connected with the expulsion of heated materials from the interior of the earth to the surface. They may break through any kind of geological formation. In Aevergne, in the miocene period, they burst through the granite and gneiss ore plateau of central France; in the period of the lower old red sandstone they pierced Silurian rocks in Scotland; in the late tertiary and post-tertiary ages they found their way through the marine strata, and formed such huge piles as Etna and Vesuvius; on the banks of the Rhine they have penetrated some of the older alluvia of the river. In many instances new volcanoes have appeared on the site of old ones. In Scotland, for example, the carboniferous volcanoes have risen on the site of those of the old red sandstone time. Somma and Vesuvius have risen from the great Neapolitan plain of marine tufa. One who has any conception of the

immense period of time during which volcanoes have been part of the scheme of this planet must marvel at the blindness of those fanatics who since the eruption of Mont Pelee prophesy that the St. Pierre catastrophe is only the beginning of the end of the world. For hundreds, perhaps for thousands of thousands of years volcanoes have been doing what Mont Pelee has done, except for the terrible accident of a cityful of people lying in the path of its discharged matter. It seems incredible that in this enlightened age men can be so densely ignorant of the past and have their vision limited to such a tiny span of earthly time as to think this particular volcanic eruption forebodes the destruction of the planet.

CLASSES OF VOLCANOES.

It is usual to class volcanoes as active, dormant and extinct, but while the active volcano cannot be mistaken it is often impossible to determine whether a volcano is extinct or only dormant. This impossibility has at times cost many human beings their lives. The volcanoes of the Silurian age in Wales, of the Carboniferous age in Ireland, of the Permian age in the Hartz mountains, and of the Miocene age in the Hebrides, are certainly extinct. Miocene volcanoes, however, are still active in Iceland in Skaptar-Jökull and Hecla. Somma in the time of Pompeii was regarded as extinct; its fires had never been known to have kindled; its vast crater was a wilderness of vines and brushwood—haunts of the wolf and the wild boar. Yet, as we shall see, the wall of the crater was blown out one day by a series of terrific explosions, the present Vesuvius was formed within the limits of the old crater and Pompeii was no more. From that day to this the volcano has been active, although there have been long intervals of quiet. Between 1500 and 1631 it was entirely dormant, its crater overgrown with vines and brushwood. Near the close of 1631, however, there came an eruption never equaled since the last day of Pompeii in 79 A. D. In the life of a volcano a period such as this of a hundred and sixty-one years is but a moment—as the time between one breath of a human being and the next.

MATERIAL THROWN OUT BY VOLCANOES.

Three kinds of material are thrown up by volcanoes—gases, lava and fragmentary substances. Gases and vapors are the earliest development in an eruption and steam is the most abundant of all. In great eruptions it rises in enormous quantities and rapidly condenses into rain. It has been calculated that in a hundred days Etna threw up enough vapor to make two hundred million barrels of water. This vapor is mixed with various materials, the most abundant being sulphurated hydrogen—giving a kind of hard-boiled-egg smell—and being the source of sulphur deposits such as those which have given its name to the volcano La Soufriere on St. Vincent's Island. At Vesuvius and some other volcanoes hydrochloric acid appears, and in others nitrogen. Carbonic acid is sometimes given off so abundantly that small animals and birds are suffocated by it. Through this circumstance some volcanic crater gave the ancients their conception of the gateway into the infernal world of Hades and caused the name Avermus, "the birdless place," to be given to it because in its neighborhood no bird could live. With these gases and vapors, some of them poisonous, are associated many substances which being sublimated by volcanic heat appear as deposits along crevices and surfaces where they reach the air and are cooled. These are salammoniac, specular iron, oxide of copper, boracic acid, the chlorides of sodium, iron, copper, lead and, most abundant of all, sulphur. It was for this, when their gunpowder gave out that the indomitable lieutenants of Cortes ascended Popocatepetl and were lowered an immense depth into its crater. The chloride of sodium or common salt is sometimes so abundantly deposited as to form valuable salt-mines.

The sources of the great quantities of water poured out by volcanoes, as mentioned as far back as the time of Lucretius in his poem on Etna, are melting snow, the condensation of great volumes of steam, and the disruption of reservoirs of water in subterranean recesses. The volcanoes of South America often throw up great quantities of dead fish, it is said, which seems to indicate a direct connection with the ocean. In Guatemala is a kind of temperance volcano which throws out nothing but water. In Java is a volcano

whose crater holds a hot, steaming lake of acid water. A destructive eruption of this volcano in 1817 greatly reduced the temperature of this water. Sometimes the water and dirt are thrown up together in the form of mud.

THE NATURE OF LAVA.

When cooled, lava is a light, porous stone containing a variety of mineral substances. Some lavas are crystalline, some half glossy or stony; others like glass. They vary also in color and in general external aspect. Their surface is commonly rough and rugged until it has been sufficiently decomposed to crumble into soil, which is the richest on earth and under favorable circumstances will support a luxurious vegetation.

Volcanic action may be either constant or periodic. Without interruption and without great violence Stromboli has been throwing up hot stones, steam and lava since the dawn of history. The Moluccas and Friendly Island volcanoes, Sangay in Quito, and Coto-paxi in Mexico, are of the same type, being constantly active. The volcanoes which lie perfectly quiet for long whiles are the ones whose bursting forth is furious. This is because the lava column in the pipe or funnel of the volcano, which in another passage we liken to the rising of the mercury in a thermometric tube, ascends slowly, forced upward and kept in perpetual agitation by the passage of elastic vapors through its mass. After long quiescence the vent is likely to contain much solid lava, which holds down the melted part. This acts precisely as a wad over powder in a gun-barrel, intensifying the explosion in precisely the same manner. A vast pressure is thus exerted on the sides of the cone. Should these be too weak to resist, they will open in one or more rents, and the liquid lava will issue from the outer slope of the mountain; or the energies of the volcano will be directed toward clearing the obstruction in its throat, until, with tremendous explosions, and vast clouds of dust and fragments, the bottom and sides of the crater are blown out, and the top of the cone disappears. The lava may now pour over the lowest part of the lip of the crater, while at the same time, immense quantities of red-hot bombs, scoriæ and stones are shot up

into the air, most of them falling back into the crater, but many descending upon the outer slopes of the cone, and some even upon the country beyond the base of the mountain. The lava rushes down at first like a river of molten iron, but, as it cools, its rate of motion lessens. Clouds of steam rise from its surface, as well as from the central crater. Indeed, every successive paroxysmal convulsion of the mountain is marked, even at a distance, by the rise of huge ball-like wreaths or clouds of steam mixed with dust and stones, forming a vast column which towers sometimes a couple of miles above the summit of the cone. By degrees these diminish in frequency and intensity. The lava ceases to flow, the shower of stones and dust dwindles down, and after a time, which, with the same mountain, may vary from hours to days or months, the volcano becomes tranquil.

VIOLENCE AND NATURE OF VOLCANIC EXPLOSIONS.

The violence of volcanic explosions is remarkable. The history of the cone of Vesuvius brings before us a long series of such explosions beginning with that in 79 A. D., which, excepting Krakatoa, was the greatest known in human history. Even now, in spite of all the ashes and lava poured out during the last 1800 years, it is easy to see how stupendous must have been that explosion by which the southern half of the crater was blown out. At every successive important eruption a similar operation takes place within the present cone. The hard cake of lava forming the floor is burst open, and with it there usually disappears much of the upper part of the cone, and sometimes, as in 1872, a large segment of the crater wall. In 1538 a new volcano was formed on the shores of the bay of Naples. A cavity was made by successive explosions and such quantities of stones, scorïæ, and ashes thrown from it as to form a hill 440 feet above the sea level and more than 8,000 feet in circumference. Showers of dust and stones are a conspicuous feature of volcanic eruptions. Instances are known where stones eight pounds in weight have passed through enormous parabolic curves in the air and fallen at a great distance. Such stones are found in the ashes that entombed Pompeii. But in many great eruptions, besides a constant shower of stones and scorïæ, a vast column of exceedingly

fine dust rises out of the crater, sometimes to the height of more than a mile, and then spreads outward like a sheet of cloud. So dense sometimes is this dust-cloud that the sun is obscured, and for days together the darkness reigns for miles around the volcano.

In 1822 this was the case at Vesuvius, the ashes not only falling on the villages around the base of the mountain, but traveling as far as Ascoli, 56 Italian miles from the mountain on one side, and to Casona, 105 miles away on the other side. But probably the most stupendous outpouring of volcanic ashes on record was that which took place after a quiescence of twenty-six years from the volcano of Consequina, in Nicaragua, during the early part of 1835. On that occasion utter darkness prevailed over a circle of 70 miles in diameter, the ashes falling so thickly that even 24 miles from the mountain they covered the ground to a depth of ten feet. It was estimated that the rain of dust and sand fell over an area of 270 geographical miles in diameter. Some of the finer materials thrown so high as to come within the influence of the upper air current were blown away to the east and fell four days afterward on the island of Jamaica, 700 miles away. Bombs, slags, and lapilli may be thrown up when the volcano is comparatively quiet, but dust-showers are always discharged with violence. Thus in the constant but comparatively quiet action of Stromboli the column of the lava in the pipe may be seen rising and falling with a slow rhythmical motion. At every rise the surface of the lava swells up into blisters several feet in diameter which by and by burst with a sharp explosion that makes the walls of the crater vibrate. A cloud of steam rushes out, carrying with it hundreds of fragments of the glowing lava, sometimes to the height of a quarter of a mile. It is by the ascent of steam through the mass that a column of lava is kept boiling at the bottom of the crater, and by the explosion of successive larger bubbles of steam that the various bombs, slags, and fragments of lava are torn off and tossed into the air. It has often been noticed at Vesuvius that, after each great concussion, a huge ball-like cloud of steam rises from the crater. Doubtless it is the sudden bursting of that steam which causes the explosion. Explosions and accompanying scorix are abundant in Vesuvius, where the lavas are compara-

tively viscid; but they are almost unknown at Kilauea, where the lava is remarkably liquid.

No part of the operations of a volcano has greater significance than the ejection of such enormous quantities of fragmentary matter. In these deposits are buried trees, the bodies of animals, and the works of man. Besides the distance to which fragments may be hurled by volcanic explosion, or to which they may be diffused by the air, we have to take into account the vast spaces across which the finer dust may be borne by upper aerial currents. On several occasions ashes from Icelandic volcanoes have fallen so thickly between the Orkney and the Shetland Islands that vessels there at sea have had the strange deposits shoveled off their decks. In 1783 Skaptar-Jökull ejected so much fine dust that the atmosphere of all Iceland was loaded with it for months afterward. It fell in such quantities over Caithness, a distance of 600 miles, as to destroy the crops, and the period is still remembered in Scotland as "the year of the ashie." Traces of the same deposit were observed as far as Holland. It is not therefore to be held that a volcanic deposit indicates proximity to a volcanic center, since it may have drifted from another center hundreds of miles away.

LAVA STREAMS.

Lava streams usually consist of glass through which are diffused microlites; and well-defined crystals of leucite may be seen in specimens of Vesuvius lava which have been dipped from a white-hot stream and suddenly congealed. The green pyroxenic lava of Hawaii exhibits so extreme a degree of fluidity that, during its ebullition in pools of the crater, jets not more than a quarter of an inch in diameter are tossed up, and, falling back on one another, make a column of "hardened tears of lava," while in places the jets thrown up and blown aside by the wind give rise to long threads of glass which lie thickly together like mown hay. The natives call this "Pele's hair," after one of their divinities. At its first appearance, where it issues from the mountain, the lava glows with a white heat, and flows with a motion which has been compared to that of honey or of melted iron. It soon becomes red, and, like a coal fallen from a hot fireplace, rapidly grows dull as it moves along, until it assumes

a black, cindery aspect. At the same time the surface congeals, and soon becomes solid enough to support a heavy block of stone. Its aspect depends, not merely on the composition and fluidity of the lava, but on the point of egress, whether from the crater or from a fissure, on the form of the ground, the angle of slope, and the rapidity of flow.

Lavas which have been kept in ebullition within the central chimney are very apt to acquire a rough cellular texture. The surface of the moving stream breaks up into rough brown or black cinder-like slags, and irregular rugged cakes, which, with the onward motion, grind and grate against each other with a harsh metallic sound, sometimes rising into rugged mounds or becoming seamed with rents and gashes, at the bottom of which the red-hot glowing lava may be seen. When lava escapes from a lateral fissure it may have no scoriæ, but its surface will present froth-like, curving lines, as in the scum of a slowly flowing river, or will be arranged in curious, ropy folds as the layers have successively flowed over each other and congealed. These and many other fantastic coiled shapes were exhibited by the lava which flowed from the side of Vesuvius in 1858. A large area which has been flooded with lava is perhaps the most hideous and appalling scene of desolation anywhere to be found on the surface of the globe. A lava stream at its point of escape from the side of a volcanic cone occupies a comparatively narrow breadth; but it usually spreads out as it descends, and moves more slowly.

HOW LAVA MOVES.

The sides of the moving mass look like huge embankments, or like some of the large mounds of "clinkers" one sees in a manufacturing district. The advancing end of the mass is often much steeper, creeping onward like a great wall or rampart, down the face of which the rough blocks of hardened lava are ever rattling. The rate of movement is regulated by the fluidity of the lava, by its volume, and by the form and inclination of the ground. Hence, as a rule, a lava-stream moves faster at first than afterward, because it has not had time to stiffen, and its slope of descent is considerably steeper than further down the mountain. One of the most fluid and swiftly-

flowing lava streams ever observed on Vesuvius was thrown out August 12, 1805. It is said to have rushed down a space of three Italian (three and two-thirds English) miles in the first four minutes, but to have widened out and moved more slowly as it descended, and finally to have reached Torre del Greco in three hours. A lava stream thrown out by Mauna Loa in 1852 went as fast as an ordinary stage-coach, or fifteen miles in two hours. Long after a current has been deeply crusted over with slags and rough slabs of lava it continues to creep slowly forward for weeks or even months. The hardened crust of a lava current is a poor conductor of heat. In the case of Jorilla, a volcano in Mexico, lava was sent out in 1759, and twenty-one years afterward cigars could be lighted at the fissures in the deposit; after forty-four years the lava still sent up steam, and after eighty-seven years two vapory columns were still rising. No sure means have been found to ascertain the temperature of lava at the moment of discharge; but the slow rate of cooling has been regarded as of high geological significance in regard to the cooling and probable internal temperature of the globe.

Besides slags, dust, and lava, sometimes large quantities of water and mud accompany volcanic eruptions. During the eruption of Vesuvius in 1662 a torrent of water and mud poured down, overthrowing the houses and burying the inhabitants of villages. Near the foot of the mountain Roman cities were overwhelmed in the first century. In 1691 one of the volcanoes of Quito threw up mud and water so filled with dead fish as to cause a pestilence. Even more destructive outpourings have taken place in the volcanoes of Java, where wide tracts of luxuriant vegetation have at different times been buried under masses of dark gray mud sometimes 100 feet thick. Mud volcanoes, perhaps not strictly volcanic, have periods of repose, when no discharge takes place, or the mud oozes tranquilly from the orifice, with shocks of activity, when large volumes of gas and sometimes columns of flame rush out with violence, throwing up mud and stones. The mud is usually cold.

GAS, SULPHUR AND POISON.

Among the products of such volcanoes are naphtha, inflammable gas and sulphur. There are also many remarkable discharges of

gases from the earth which seem to come from volcanic action. The most remarkable of these is in Java, known as the Valley of Death. There is a deep, bosky hollow, in which from one small space on the bottom carbonic acid issues so copiously as to form the lower stratum of the atmosphere. Animals enticed by the seclusion and shelter of the spot pass in and are suffocated. This is the place that was long known as the valley of the Bohon Upas, and the poison was supposed to come from a tree called by that name. From end to end this island is a chain of vents and craters, which, when active, have thrown out mud instead of lava, and along with this mud have come sulphurous vapors, and even sulphuric acid, in such quantities that a lake near a crater is so strongly impregnated as to kill every living thing that enters its waters. Not only this, but the stream which flows out of the lake is so acrid that the fishes of the sea near the mouth of the river are destroyed the moment they touch it.

Some of the accounts of the slaying of the inhabitants of St. Pierre seem to indicate that from Mont Pelee burst down a wave of some such heavy, life-destroying gas.

CHAPTER XIV.

THE FAMOUS VOLCANOES OF THE WORLD.

What They Are—How Formed—Table of Volcanoes—Pacific Ocean—Atlantic Ocean—Indian Ocean—Mediterranean Sea.

Volcanoes, being limited to particular places, have caused far less destruction of human life since history began than earthquakes, but the form of destruction is even more appalling. The recent volcanic catastrophe has roused in the minds of all men as never before a desire to know just what manner of thing a volcano is. To meet this desire we give the following account. Volcanoes are, essentially, openings in the earth's crust from which various kinds of matter in a highly heated condition are ejected, such as gases, steam, ashes and cinders, masses of solid rock, boiling mud and molten rock called lava. The heavier portions of the materials thus ejected fall back within and around the vent, thus in time building up the hilly or mountainous cones by which volcanoes are in general distinguished. To account for them we must conceive the earth as a ball whose crust in cooling contracts and thus increases the pressure on the mass within to such a point that it must somewhere escape. Volcanoes, terrible as their effects are, are really safety valves without which the very planet would be blown up. The same slow shrinking of the earth's crust which produces volcanoes likewise causes earthquakes.

The depression in the top of the conical formation of a volcano is called its crater. The appearance of burning and of vomiting forth flame and smoke, which was noted at Martinique and other great eruptions, is not caused by external combustion, but is simply the fiery reflection thrown upon the ascending volumes of steam and vapor from the incandescent materials within the vent. The action of one volcano is so much like that of every other that a professor of geology in Chicago was able to correct the statements of newspaper

correspondents who gathered their information about Mont Pelee on the spot.

HOW VOLCANOES ARE FORMED.

Volcanic structures are formed not only on the land but rise from the bed of the great ocean floor. In Rudyard Kipling's sea-serpent yarn ironically called by him "A Matter of Fact," he gives a marvelous description of the effect of a submarine earthquake upon the surface of the sea. In his story two vast sea monsters that had lived down there in the dark for centuries perhaps were thrown to the surface by the earthquake beneath miles of water and were seen of the eyes of men. We may take the monsters with a whole hog's-head of salt, but the description of the action of the sea is accurate and well worth reading. Not fiction but fact is the rising of a volcano above the surface of the sea in 1796, about thirty miles to the north of Unalaska, in the Pacific ocean. A column of smoke was first seen rising from the water. The ejected materials having raised the crater above the level of the water, flames issued from the new islet and brightly illuminated the waters for ten miles around. Six years afterwards, when a few hunters landed on the new shore they found the soil in some places so hot that they could not walk upon it. Repeated eruptions have increased the dimensions of the island until it now rises several thousand feet above sea level and is between two and three miles in circumference. Not far from this new baby among volcanic isles is the giant Klintschewsk which rises sheer from the sea to the enormous height of 15,000 feet, as high, that is, as Mont Blanc, with no range of mountains near to dwarf its height.

THE FAMOUS VOLCANOES OF THE WORLD.

The name volcano is borrowed from Vulcan, god of fire, and originally the name was applied only to Mount Etna in Sicily, the volcano most famous in classical times and the one which yet leads all others in the number of its recorded eruptions. One in 1149 B. C. is said to have driven the demigod Hercules from the island, but the first actually recorded and not merely a matter of tradition was in the time of Pythagoras. Later the word volcano

became the general name for a mountain with a crater or opening into a mass of molten rock within the earth. Such mountains are widely distributed over the world, but are mostly near the sea. They are variable in activity, and usually intermittent; sometimes quiet for many years or even centuries, and again extremely violent, throwing high in the air vast columns of smoke and fire with cinders, and pouring through crevices streams of lava or melted rocks, which at times cover large tracts of land, sometimes with a suddenness that brings appalling disaster to the dwellers on their slopes.

Many volcanoes, once active, have been quiescent since the dawn of history. We give a list of active and extinct volcanoes located by groups. There are two systems, one called the central, the other the linear. The former consists of several vents grouped together, and of these only one is usually in eruption at any one time. The latter system consists of vents extending in one direction along a range of mountains, as the Andes in South America, and extending into North America as the Rocky Mountains. Some, long regarded as extinct, have suddenly become active.

CENTRAL SYSTEM—GROUPS.

MEDITERRANEAN SEA.

NAME OF GROUP.	NO.	REMARKS.
I. Etna, Sicily.	1	Active.
II. Vesuvius, Italy.	1	Active.
III. Lipari Islands.	2	Stromboli, the principal, always mildly active, called the "Light-house of the Mediterranean."

ATLANTIC OCEAN.

IV. Jan Mayen Island.	2	Active, most northern volcanoes on the globe.
V. Iceland.	8	Hecla, the principal, all active.
VI. Azores.	2	1 active.
VII. Canary Islands,	5	1 active (Teneriffe quiet).

NAME OF GROUP.	NO.	REMARKS.
VIII. Cape Verde Islands.	1	Active.
IX. Ascension.	1	
X. Tristan d'Acuna Islands.	1	
XI. Trinidad Island.	1	
XII. Traverse Isles.	2	1 active.

INDIAN OCEAN.

XIII. Mauritius and Bourbon Isles.	3	1 active.
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PACIFIC OCEAN.

XIV. Hawaiian Archipelago.	4	3 active, Kilauéa and Mauna, Loa the principal.
XV. Galapagos Islands.	1	Active.
XVI. Marquesas Islands.	1	
XVII. Society Islands.	1	
XVIII. Easter Islands.	1	

WESTERN ASIA.

XIX. El Burs, Ararat, etc.	3	1 active.
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EASTERN AFRICA.

XX. Zanguebar.	2	
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LINEAR SYSTEM—GROUPS.

MEDITERRANEAN SEA.

I. Santorini, Greek Islands.	1	Active.
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ASIA.

II. Thian-Shan.	2	Active.
III. Red Sea.	2	1 active.
IV. Kamchatka.	21	All active.

SOUTH PACIFIC OCEAN.

NAME OF GROUP.	NO.	REMARKS.
V. Friendly Isles.	4	2 active.
VI. Australasian Isles.	13	All active.

NORTH PACIFIC OCEAN.

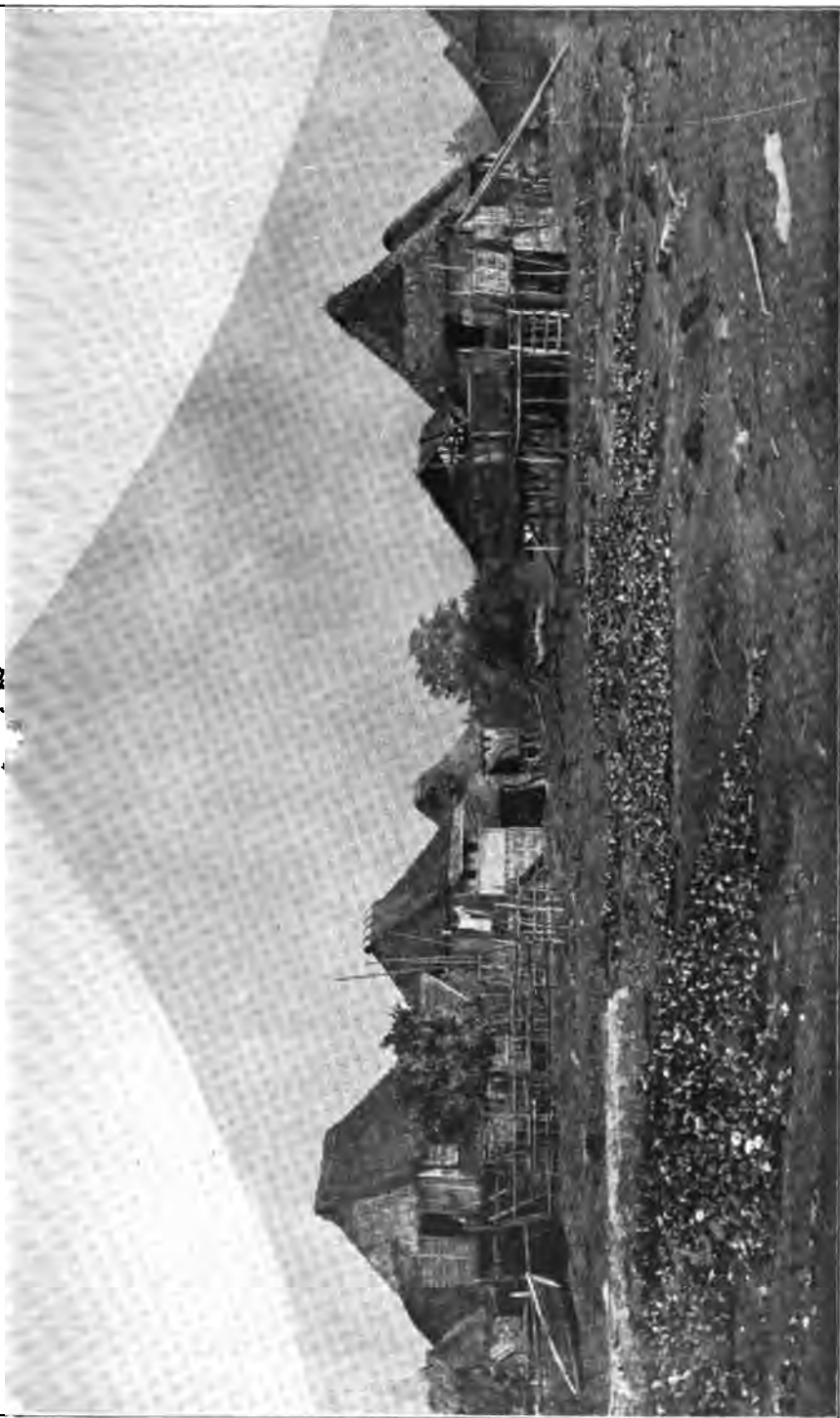
VII. Moluccas—Philip- pines, Formosa.	37	At least 25 active.
VIII. Ladrone Isles.	7	3 active.
IX. Bonin Sima Isles.	2	Both active.
X. Japan.	23	From 15 to 19 active.
XI. Kurile Isles.	18	11 active.
XII. Aleutian Isles.	35	23 active.

INDIAN OCEAN, SUNDA.

XIII. Sunda Isles.	80	47 are on the island of Java, 16 of them active, and 7 on the island of Sumatra. On the Island of Krakatoa the greatest eruption of modern times occurred 26th-28th of August, 1883.
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AMERICA.

XIV. North Pacific Coast.	10	4 active.
XV. Mexico.	7	5 active.
XVI. Central America.	36	25 active.
XVII. West Indies.	10	7 active, among them Mont Pelee, on the Island of Mar- tinique, which overwhelmed St. Pierre.
XVIII. South America, Quito.	17	10 active.
XIX. Peru and Bolivia.	12	9 highest in the world.
XX. Chili.	22	17 active.
XXI. Terra del Fuego.	3	
XXII. Antarctic Continent.	3	Active, Erebus on Victoria Land, 77° 32' S. Lat., is the most southern volcano known.



VOLCANO IN ALBAY, PHILIPPINE ISLANDS

This beautiful mountain is visible to the traveler for a long distance, and from the great height of its summit a beautiful tropical scene spreads before the eye. Like many other mountains reared by volcanic action, this one takes the form of an almost perfect cone, with a remarkable resemblance to two other famous volcanic mountains, Fujiyama in Japan and Mount Egmout, in the north island of New Zealand.



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RED CROSS SOCIETY CARRYING RELIEF TO MARTINIQUE.

Famine threatened the island, but thanks to the great hearts of all nations, relief is speedily sent, and chief among the helpers is the United States and Canada.

CHAPTER XV.

THE DESTRUCTION OF POMPEII.

Lost for Centuries—Excavations Begun in 1755—Living Pictures—Bulwer's Magic Description—Love Amid the Ruins—Boiling Water—Ghostly Pictures.

In the first year of the reign of Titus (August 24th, A. D. 79) occurred the most terrible eruption of the volcano of Vesuvius ever known, completely destroying the three cities of Herculaneum, Stabiae and Pompeii, the latter a favorite resort of wealthy Romans who had their country villas in its suburbs. Pompeii was then a seaport situated at the mouth of the Sarnus river. It was much damaged by an earthquake on February 5th, A. D. 63, this earthquake being alluded to in Bulwer-Lytton's "Last Days of Pompeii." On that August day, the very last of Pompeii, the terrific eruption of the volcano overwhelmed it in irremediable ruin. The elder Pliny, the great naturalist, perished with the city that day. His nephew, Pliny the younger, afterwards wrote that account of the catastrophe which is the chief source of our knowledge thereof.

POMPEII LOST FOR CENTURIES.

In course of time a small village rose at or near the spot; but by and by the memory of Pompeii was lost, and for centuries its very site was unknown. The difficulty of discovering its true position was increased by the topographical changes wrought by the convulsion which destroyed it, and, hurling back the river Sarnus from its ancient course, raised the sea-beach to a considerable height. When finally in 1689 some ruins were noticed, the city to which merchant vessels once resorted was a mile from the coast and a considerable distance from the river that used to skirt its walls.

EXCAVATION BEGUN IN 1755.

In 1755 excavation of the ancient "City of the Dead" was begun by the Neapolitan government and continued far into the nineteenth

century. It produced objects and brought to light details of ancient life that wonderfully enrich our modern conception of how the people lived two thousand years ago. The remains are found in a remarkably good state of preservation owing to the fact that the city was destroyed not by a stream of lava as St. Pierre has just now been destroyed, but by showers of sand, ashes and cinders, forming a light covering, which found its way into every nook, and hermetically sealed up the town. In some parts the volcanic matter was deposited in the form of liquid mud like that which formed on the decks and sails of the vessels near Krakatoa in 1883, and this liquid mud flowed into the remotest cellars of the doomed habitations.

Contrary to the general popular belief, it is probable that the inhabitants of Pompeii (numbering only 20,000) had sufficient warning of the approaching calamity to enable them to flee. Some of them, however, certainly delayed their flight until it was too late to save themselves, as is fully proved by the remains of human beings found in situations showing that they were instantaneously overtaken by death. The bodies of seventeen Roman people were thus discovered in the cellar of one house in Pompeii, inclosed in a hard substance, which must have rushed in upon them, engulfing them and then hardening about them as it cooled. When this cellar was excavated the skeleton of a woman with a child in her arms was discovered and these two were inclosed in a mold of volcanic paste which retained a perfect impression of their forms. Signor Fiorelli, the director of the excavations, had these molds filled with liquid plaster, thus obtaining casts of the forms they once contained.

On the skeleton finger of the woman just mentioned were gold rings and about its neck a gold chain. In the barracks were found the remains of two soldiers chained to the stocks, and doubtless forgotten amid the terror, darkness and confusion of that terrible August day. In some of the two-story Pompeian houses, built like the Spanish houses of to-day around a small central court, there were amphoræ, earthen vessels in which wine yet remained when the city was unearthed, and about these vessels, upon the marble slabs, stood drinking cups. Olives in a remarkable state of preservation were found in a jar. A box of pills stood on the counter of an apothecary. In a fruiterer's shop were chestnuts, walnuts and

almonds which presented no evidence of decay. So marvelously close did the excavators come to the life of people who died eighteen hundred years before. Had it not been for the mineral rain that poured down from the sky those very chestnuts which modern laborers beheld would have been eaten by ancient Romans. So were found needles, scissors, compasses, fine surgical instruments, silver spoons, all kinds of kitchen implements and tools for working at various trades. Over the doors of shops may still be seen the painted signs which advertised the trade carried on inside the house.

RUBBISH FROM MANY ERUPTIONS.

The superincumbent rubbish, in most places about fifteen feet in depth, is the accumulation of different eruptions, as many as nine distinct layers having been counted, and of these sometimes the lower layers have been disturbed by human hands while those above have not. The comparatively few skeletons found and the almost entire absence of objects of great value, as gold and silver plate, shows perhaps that most of the inhabitants escaped and then returned to bury their dead and take away their treasures. Two hundred skeletons, however, were found in the temple of Juno, where the living beings must have rushed to seek the protection of the goddess.

LIVING PICTURE OF AN ANCIENT CITY.

The walls of the city are about two miles in circumference. Within these walls the greatest disaster of ancient times has preserved for the enlightenment of our age a living picture, as it were, of a city of eighteen hundred and twenty-three years ago.

The genius of Bulwer has restored to life certain types of human beings who lived in that old city. He gives the following description of the eruption of Vesuvius at the climax of his story when one of the chief characters, Arbaces, is in the arena, and a great mob of the Roman populace is demanding that he be thrown to the lion. The waves of the human sea halted for a moment, to enable Arbaces to count the moments of his doom! In despair, and in a terror which beat down even pride, he glanced his eyes over the rolling and rushing crowd, when, right above them, through the wide chasm which

had been left in the velaria, he beheld a stranger and awful apparition; he beheld, and his craft restored his courage!

He stretched his hand on high; over his lofty brow and royal features there came an expression of unutterable solemnity and command.

BULWER'S MAGIC DESCRIPTION.

“ ‘Behold!’ he shouted with a voice of thunder, which stilled the roar of the crowd; ‘behold how the gods protect the guiltless! The fires of the avenging Orcus burst forth against the false witness of my accusers!’

“The eyes of the crowd followed the gesture of the Egyptian, and beheld, with ineffable dismay, a vast vapor shooting from the summit of Vesuvius, in the form of a gigantic pine-tree, the trunk, blackness, the branches, fire,—a fire that shifted and wavered in its hues with every moment, now fiercely luminous, now of a dull and dying red, that again blazed terrifically forth with intolerable glare.

“There was a dead, heart-sunken silence, through which there suddenly broke the roar of the lion, which was echoed back from within the building by the sharper and fiercer yells of its fellow-beast. Dread seers were they of the Burden of the Atmosphere, and wild prophets of the wrath to come!

“Then there arose on high the universal shrieks of women; the men stared at each other, but were dumb. At that moment they felt the earth shake beneath their feet; the walls of the theater trembled, and beyond in the distance they heard the crash of falling roofs; an instant more and the mountain-cloud seemed to roll towards them, dark and rapid, like a torrent; at the same time it cast forth from its bosom a shower of ashes mixed with vast fragments of burning stone! Over the crushing vines, over the desolate streets, over the amphitheater itself, far and wide, with many a mighty splash in the agitated sea, fell that awful shower!

“No longer thought the crowd of justice or of Arbaces; safety for themselves was their sole thought. Each turned to fly,—each dashing, pressing, crushing, against the other. Trampling recklessly over the fallen, amidst groans, and oaths, and prayers, and sudden shrieks, the enormous crowd vomited itself forth through the numer-

ous passages. Whither should they fly? Some, anticipating a second earthquake, hastened to their homes to load themselves with their more costly goods, and escape while it was yet time; others, dreading the showers of ashes that now fell fast, torrent upon torrent, over the streets, rushed under the roofs of the nearest houses, or temples, or sheds,—shelter of any kind,—for protection from the terrors of the open air. But darker, and larger, and mightier, spread the cloud above them. It was a sudden and more ghastly Night rushing upon the realm of Noon!

“Meanwhile Glaucus and Nydia were pacing swiftly up the perilous and fearful streets. The Athenian had learned from his preserver that Ione was yet in the house of Arbaces. Thither he fled, to release—to save her! The few slaves whom the Egyptian had left at his mansion when he had repaired in long procession to the amphitheater had been able to offer no resistance to the armed band of Sallust; and when afterwards the volcano broke forth, they had huddled together, stunned and frightened, in the inmost recesses of the house. Even the tall Ethiopian had forsaken his post at the door; and Glaucus (who left Nydia without—the poor Nydia, jealous once more, even in such an hour!) passed on through the vast hall without meeting one from whom to learn the chamber of Ione. Even as he passed, however, the darkness that covered the heavens increased so rapidly that it was with difficulty he could guide his steps. The flower-wreathed columns seemed to reel and tremble, and with every instant he heard the ashes fall cranchingly into the roofless peristyle. He ascended to the upper rooms; breathless he passed along, shouting aloud the name of Ione; and at length he heard, at the end of a gallery, a voice,—*her* voice, in wondering reply. To rush forward, to shatter the door, to seize Ione in his arms, to hurry from the mansion, seemed to him the work of an instant! Scarce had he gained the spot where Nydia was, than he heard steps advancing towards the house, and recognized the voice of Arbaces, who had returned to seek his wealth and Ione ere he fled from the doomed Pompeii. But so dense was already the reeking atmosphere, that the foes saw not each other, though so near, save that, dimly in the gloom, Glaucus caught the moving outline of the snowy robes of the Egyptian.

“They hastened onward,—those three. Alas! whither? They now saw not a step before them,—the blackness became utter. They were encompassed with doubt and horror; and the death he had escaped seemed to Glaucus only to have changed its form and augmented its victims.

LOVE AMID THE RUINS.

“The sudden catastrophe which had, as it were, riven the very bonds of society, and left prisoner and jailer alike free, had soon rid Calenus of the guards to whose care the prætor had consigned him. And when the darkness and the crowd separated the priest from his attendants, he hastened with trembling steps toward the temple of his goddess. As he crept along, and ere the darkness was complete, he felt himself suddenly caught by the robe, and a voice muttered in his ear,—

“ ‘Hist! Calenus! an awful hour!’

“ ‘Ay! by my father’s head! Who art thou? Thy face is dim, and thy voice is strange!’

“ ‘Not know thy Burbo? Fie!’

“ ‘Gods! how the darkness gathers! Ho, ho! by yon terrific mountain what sudden blazes of lightning! How they dart and quiver! Hades is loosed on earth!’

“ ‘Tush! thou believest not these things, Calenus! Now is the time to make our fortune!’

“ ‘Ha!’

“ ‘Listen! Thy temple is full of gold and precious mummeries. Let us load ourselves with them, and then hasten to the sea and embark. None will ever ask an account of the doings of this day.’

“ ‘Burbo, thou art right! Hush! and follow me into the temple. Who cares now, who sees now, whether thou art a priest or not? Follow, and we will share.’

“In the precincts of the temple were many priests gathered around the altars, praying, weeping, grovelling in the dust. Impostors in safety, they were not the less superstitious in danger. Calenus passed them, and entered the chamber yet to be seen in the south side of the court. Burbo followed him; the priest struck a

light. Wine and viands strewed the table, the remains of a sacrificial feast.

“‘A man who has hungered forty-eight hours,’ muttered Calenus, ‘has an appetite even in such a time.’ He seized on the food and devoured it greedily. Nothing could, perhaps, be more unnaturally horrid than the selfish baseness of these villains; for there is nothing more loathsome than the valor of avarice. Plunder and sacrilege while the pillars of the world tottered to and fro! What an increase to the terrors of nature can be made by the vices of man!

“‘Wilt thou never have done?’ said Burbo, impatiently; ‘thy face purples and thine eyes start already.’

“‘It is not every day one has such a right to be hungry. O Jupiter! what sound is that? The hissing of fiery water! What! does the cloud give rain as well as flame! Ha! what! shrieks! And, Burbo, how silent all is now! Look forth!’

RAIN OF BOILING WATER.

“‘Amidst the other horrors, the mighty mountain now cast up columns of boiling water. Blent and kneaded with the half-burning ashes, the streams fell like seething mud over the streets in frequent intervals. And full, where the priests of Isis had now cowered around the altars, on which they had vainly sought to kindle fires and pour incense, one of the fiercest of those deadly torrents, mingled with immense fragments of scoria, had poured its rage. Over the bended forms of the priests it dashed; that cry had been of death; that silence had been of eternity. The ashes, the pitchy stream, sprinkled the altars, covered the pavement, and half concealed the quivering corpses of the priests.

“‘They are dead,’ said Burbo, terrified for the first time, and hurrying back into the cell. ‘I thought not the danger was so near and fatal.’

“‘The two wretches stood staring at each other; you might have heard their hearts beat! Calenus, the less bold by nature, but the more griping, recovered first.

“‘We must to our task, and away!’ he said, in a low whisper,

frightened at his own voice. He stepped to the threshold, paused, crossed over the heated floor and his dead brethren to the sacred chapel, and called to Burbo to follow; but the gladiator quaked, and drew back.

“‘So much the better,’ thought Calenus; ‘the more will be *my* booty.’ Hastily he loaded himself with the more portable treasures of the temple, and thinking no more of his comrade, hurried from the sacred place. A sudden flash of lightning from the mount showed to Burbo, who stood motionless at the threshold, the flying and laden form of the priest. He took heart; he stepped forth to join him, when a tremendous shower of ashes fell right before his feet. The gladiator shrank back once more. Darkness closed him in. But the shower continued fast, fast; its heaps rose high and suffocatingly; deathly vapors steamed from them. The wretch gasped for breath; he sought in despair again to fly; the ashes had blocked up the threshold; he shrieked as his feet shrank from the boiling fluid. How could he escape? He could not climb to the open space; nay, were he able, he could not brave its horrors. It were best to remain in the cell, protected, at least, from the fatal air. He sat down and clenched his teeth. By degrees the atmosphere from without—stifling and venomous—crept into the chamber. He could endure it no longer. His eyes, glaring round, rested on a sacrificial axe, which some priest had left in the chamber; he seized it. With the desperate strength of his gigantic arm he attempted to hew his way through the walls.

GHOSTLY PICTURES.

“Meanwhile the streets were already thinned; the crowd had hastened to disperse itself under shelter; the ashes began to fill up the lower parts of the town; but here and there you heard the steps of fugitives cranching them wearily, or saw their pale and haggard faces by the blue glare of the lightning, or the more unsteady glare of torches, by which they endeavored to steer their steps. But ever and anon the boiling water, or the straggling ashes, mysterious and gusty winds, rising and dying in a breath, extinguished

these wandering lights, and with them the last living hope of those who bore them."

As two other characters in the story reached the gate in the street that led to Herculaneum "they passed by the Roman sentry; the lightning flashed over his livid face and polished hemlet, but his stern features were composed even in their awe. He remained erect and motionless at his post. That hour itself had not animated the machine of the ruthless majesty of Rome into the reasoning and self-acting man. There he stood, amidst the crashing elements; he had not received the permission to desert his station and escape."

Bulwer builds here on the certain fact that the skeletons of more than one Roman sentry were found in Pompeii at their posts. The description which follows has never been surpassed by any writer on the destruction wrought by volcanoes upon mankind.

"The cloud, which had scattered so deep a murkiness over the day, had now settled into a solid and impenetrable mass. It resembled less even the thickest gloom of night in the open air than the close and blind darkness of some narrow room. But in proportion as the blackness gathered did the lightnings around Vesuvius increase in their vivid and scorching glare. Nor was their horrible beauty confined to the usual hues of fire; no rainbow ever rivaled their varying and prodigal dyes. Now brightly blue as the most azure depth of a southern sky; now of a livid and snake-like green, darting restlessly to and fro, as the folds of an enormous serpent; now of a lurid and intolerable crimson, gushing forth through the columns of smoke, far and wide, and lighting up the whole city from arch to arch; then suddenly dying into a sickly paleness like the ghost of their own life.

"In the pauses of the showers you heard the rumbling of the earth beneath, and the groaning waves of the tortured sea; or, lower still, and audible but to the watch of intensest fear, the grinding and hissing murmur of the escaping gases through the chasms of the distant mountain. Sometimes the cloud appeared to break from its solid mass, and, by the lightning, to assume quaint and vast mimicries of human or of monster shapes, striding across the gloom, hurtling one upon the other, and vanishing swiftly into the turbulent abyss of shade; so that to the eyes and fancies of the af-

frighted wanderers, the unsubstantial vapors were as the bodily forms of gigantic foes, the agents of terror and of death.

“The ashes in many places were already knee deep, and the boiling showers which came from the steaming breath of the volcano forced their way into the houses, bearing with them a strong and suffocating vapor. In some places immense fragments of rock, hurled upon the house-roofs, bore down along the streets masses of confused ruin, which yet more and more, with every hour, obstructed the way; and as the day advanced the motion of the earth was more sensibly felt; the footing seemed to slide and creep, nor could chariot or litter be kept steady, even on the most level ground.

“Sometimes the huger stones, striking against each other as they fell, broke into countless fragments, emitting sparks of fire, which caught whatever was combustible within their reach; and along the plains beyond the city the darkness was now terribly relieved, for several houses, and even vineyards, had been set on flames; and at various intervals the fires rose sullenly and fiercely against the solid gloom. To add to this partial relief of the darkness the citizens had, here and there, in the more public places, such as the porticos of temples and the entrances to the forum, endeavored to place rows of torches; but these rarely continued long; the showers and the winds extinguished them, and the sudden darkness into which their sudden birth was converted had something in it doubly terrible and doubly impressing on the impotence of human hopes, the lesson of despair.

FUGITIVES AMONG THE RUINS.

“Frequently, by the momentary light of these torches, parties of fugitives encountered each other, some hurrying toward the sea, others flying from the sea back to the land; for the ocean had retreated rapidly from the shore; an utter darkness lay over it, and upon its groaning and tossing waves the storm of cinders and rock fell without the protection which the streets and roofs afforded to the land. Wild, haggard, ghastly with supernatural fears, these groups encountered each other, but without the leisure to speak, to consult, to advise; for the showers fell now frequently, though

not continuously, extinguishing the lights, which showed to each band the death-like faces of the other, and hurrying all to seek refuge beneath the nearest shelter. The whole elements of civilization were broken up. Ever and anon, by the flickering lights, you saw the thief hastening by the most solemn authorities of the law, laden with, and fearfully chuckling over, the produce of his sudden gains. If, in the darkness, wife was separated from husband, or parent from child, vain was the hope of reunion. Each hurried blindly and confusedly on. Nothing in all the various and complicated machinery of social life was left, save the primal law of self-preservation!

“Through this awful scene did the Athenian make his way, accompanied by Ione.

“Advancing, as men grope for escape in a dungeon, they continued their uncertain way. At the moments when the volcanic lightnings lingered over the streets they were enabled, by that awful light, to steer and guide their progress; yet little did the view it presented to them cheer or encourage their path. In parts, where the ashes lay dry and uncommixed with the boiling torrents cast upward from the mountain at capricious intervals, the surface of the earth presented a leprous and ghastly white. In other places cinder and rock lay matted in heaps, from beneath which emerged the half-hid limbs of some crushed and mangled fugitive. The groans of the dying were broken by wild shrieks of women’s terror, now near, now distant, which, when heard in the utter darkness, were rendered doubly appalling by the crushing sense of helplessness and the uncertainty of the perils around; and clear and distinct through all were the mighty and various noises from the Fatal Mountain, its rushing winds, its whirling torrents, and from time to time the burst and roar of some more fiery and fierce explosion. And ever as the winds swept howling along the street they bore sharp streams of burning dust, and such sickening and poisonous vapors as took away, for the instant, breath and consciousness, followed by a rapid revulsion of the arrested blood, and a tingling sensation of agony trembling through every nerve and fibre of the frame.

RIVALS MEET AMID THE RUINS.

“ ‘Oh, Glaucus, my beloved! my own! take me to thy arms! One embrace! let me feel thy arms around me, and in that embrace let me die; I can no more!’

“ ‘For my sake, for my life, courage yet, sweet Ione; my life is linked with thine. And see—torches—this way! Lo! how they brave the wind! Ha! they live through the storm, doubtless fugitives to the sea! we will join them.’

“As if to aid and reanimate the lovers, the winds and showers came to a sudden pause; the atmosphere was profoundly still, the mountain seemed at rest, gathering, perhaps, fresh fury for its next burst; the torch-bearers moved quickly on. ‘We are nearing the sea,’ said, in a calm voice, the person at their head. ‘Liberty and wealth to each slave who survives this day! Courage! I tell you that the gods themselves have assured me of deliverance! On!’

“Redly and steadily the torches flashed full on the eyes of Glaucus and Ione, who lay trembling and exhausted on his bosom. Several slaves were bearing, by the light, panniers and coffers, heavily laden; in front of them, a drawn sword in his hand, towered the lofty form of Arbaces.

“ ‘By my fathers!’ cried the Egyptian, ‘Fate smiles upon me even through these horrors, and, amidst the drearest aspects of woe and death, bodes me happiness and love. Away, Greek! I claim my ward, Ione!’

“ ‘Traitor and murderer!’ cried Glaucus, glaring upon his foe, ‘Nemesis hath guided thee to my revenge—a just sacrifice to the shades of Hades, that now seemed loosed on earth! Approach, touch but the hand of Ione, and thy weapon shall be as a reed; I will tear thee limb from limb!’

“Suddenly, as he spoke, the place became lighted with an intense and lurid glow. Bright and gigantic through the darkness, which closed around it like the walls of hell, the mountain shone—a pile of fire! Its summit seemed riven in two; or, rather, above its surface there seemed to rise two monster shapes, each confronting each, as Demons contending for a World. These were of one deep blood-red hue of fire, which lighted up the whole atmosphere far

and wide; but *below* the nether part of the mountain was still dark and shrouded, save in three places, adown which flowed serpentine and irregular rivers of the molten lava. Darkly red through the profound gloom of their banks they flowed slowly on, as toward the devoted city. Over the broadest there seemed to spring a cragged and stupendous arch, from which, as from the jaws of hell, gushed the sources of the sudden Phlegethon; and through the stilled air was heard the rattling of the fragments of rock, hurtling one upon another as they were borne down the fiery cataracts, darkening for one instant the spot where they fell, and suffused the next in the burnished hues of the flood along which they floated!

"The slaves shrieked aloud, and, cowering, hid their faces. The Egyptian himself stood transfixed to the spot, the glow lighting up his commanding features and jewelled robes. High behind him rose a tall column that supported the bronze statue of Augustus; and the imperial image seemed changed to a shape of fire!

"With his left hand circled round the form of Ione, with his right arm raised in menace, and grasping the stilus which was to have been his weapon in the arena, and which he still fortunately bore about him, with his brow knit, his lips apart, the wrath and menace of human passions arrested as by a charm upon his features, Glaucus fronted the Egyptian.

THE FATES DECIDE.

"Arbaces turned his eyes from the mountain; they rested on the form of Glaucus! He paused a moment. 'Why,' he muttered, 'should I hesitate? Did not the stars foretell the only crisis of imminent peril to which I was subjected? Is not that peril past?'

" 'The soul,' cried he, 'can brave the wreck of worlds and the wrath of imaginary gods! By that soul will I conquer to the last! Advance, slaves! Athenian, resist me and thy blood be on thine own head! Thus, then, I regain Ione!'

"He advanced one step; it was his last on earth! The ground shook beneath him with a convulsion that cast all around upon its surface. A simultaneous crash resounded through the city, as down toppled many a roof and pillar! The lightning, as if caught

by the metal, lingered an instant on the Imperial Statue, then shivered bronze and column! Down fell the ruin, echoing along the street, and riving the solid pavement where it crashed! The prophecy of the stars was fulfilled.

"The sound, the shock, stunned the Athenian for several moments. When he recovered the light still illumined the scene, the earth still slid and trembled beneath! Ione lay senseless on the ground; but he saw her not yet; his eyes were fixed upon a ghastly face that seemed to emerge, without limbs or trunk, from the huge fragments of the shattered column, a face of unutterable pain, agony, and despair! The eyes shut and opened rapidly, as if sense were not yet fled; the lips quivered and grinned; then sudden stillness and darkness fell over the features, yet retaining that aspect of horror never to be forgotten!

"Glaucus turned in gratitude but in awe, caught Ione once more in his arms, and fled along the street, that was yet intensely luminous. But suddenly a duller shade fell over the air. Instinctively he turned to the mountain, and behold! one of the two gigantic crests, into which the summit had been divided, rocked and wavered to and fro; and then, with a sound, the mightiness of which no language can describe, it fell from its burning base and rushed, an avalanche of fire, down the sides of the mountain! At the same instant gushed forth a volume of blackest smoke, rolling on over air, sea, and earth.

"Another—and another—and another shower of ashes far more profuse than before, scattered fresh desolation along the streets. Darkness once more wrapped them as a veil; and Glaucus, his bold heart at last quelled and despairing, sank beneath the cover of an arch and, clasping Ione to his heart—a bride on that couch of ruin—resigned himself to die.

"The sudden illumination, the bursts of the floods of lava, and the earthquake, which we have already described, chanced when Sallust and his party had just gained the direct path leading from the city to the port; and here they were arrested by an immense crowd, more than half the population of the city. They spread along the field without the walls, thousands upon thousands, uncertain whither to fly. The sea had retired far from shore; and they

who had fled to it had been so terrified by the agitation and preternatural shrinking of the element, the gasping forms of the uncouth sea things which the waves had left upon the sand, and by the sound of the huge stones cast from the mountain into the deep, that they had returned again to the land, as presenting the less frightful aspect of the two. Thus the two streams of human beings, the one seaward, the other *from* the sea, had met together, feeling a sad comfort in numbers, arrested in despair and doubt.

“After many pauses and incredible perseverance, the two lovers, discovered and guided by the blind girl Nydia, gained the sea, and joined a group who, bolder than the rest, resolved to hazard any peril rather than continue in such a scene. In darkness they put forth to sea; but, as they cleared the land and caught new aspects of the mountain, its channels of molten fire threw a partial redness over the waves.

“Utterly exhausted and worn out, Ione slept on the breast of Glaucus, and Nydia lay at his feet. Meanwhile the showers of dust and ashes, still borne aloft, fell into the waves and scattered their snows over the deck. Far and wide, borne by the winds, those showers descended upon the remotest climes, startling even the swarthy African and whirled along the antique soil of Syria and of Egypt.”

MORNING AFTER DESOLATION.

Of the next morning Bulwer writes: “Light was about to resume her reign. Yet, still, dark and massive in the distance, lay the broken fragments of the destroying cloud, from which red streaks, burning dimlier and more dim, betrayed the yet rolling fires of the mountain of the “Scorched Fields.” The white walls and gleaming columns that had adorned the lovely coasts were no more. Sullen and dull were the shores so lately crested by the cities of Herculaneum and Pompeii. The darlings of the Deep were snatched from her embrace! Century after century shall the mighty Mother stretch forth her azure arms and know them not, moaning round the sepulchres of the Lost!”

AFTER SEVENTEEN CENTURIES.

In his closing paragraphs the novelist bridges the gap of seventeen centuries which elapsed between the last hour of Pompeii and the present day. "Nearly seventeen centuries," writes he, "had rolled away when the city of Pompeii was disinterred from its silent tomb, all vivid with undimmed hues; its walls fresh as if painted yesterday; not a hue faded on the rich mosaic of its floors; in its forum the half-finished columns as left by the workman's hand in its gardens the sacrificial tripod; in its halls the chest of treasure; in its baths the strigil; in its theaters the counter of admission; in its saloons the furniture and the lamp; in its triclinia the fragments of the last feast; in its cubicula the perfumes and the rouge of faded beauty; and everywhere the bones and skeletons of those who once moved the springs of that minute yet gorgeous machine of luxury and of life!

"In the house of Diomed, in the subterranean vaults, twenty skeletons (one of a babe) were discovered in one spot by the door, covered by a fine ashen dust, that had evidently been wafted slowly through the apertures until it had filled the whole space. There were jewels and coins, candelabra for unavailing light, and wine hardened in the amphoræ for a prolongation of agonized life. The sand, consolidated by damp, had taken the forms of the skeletons as in a cast, and the traveler may yet see the impression of a female neck and bosom of young and round proportions—a trace of the fated Julia! It seems to the inquirer as if the air had been gradually changed into a sulphurous vapor; the inmates of the vaults had rushed to the door to find it closed and blocked up by the scoria without, and in their attempts to force it had been suffocated with the atmosphere.

"In the garden was found a skeleton with a key by its bony hand, and near it a bag of coins. This is believed to have been the master of the house—the unfortunate Diomed, who had probably sought to escape by the garden and been destroyed either by the vapors or some fragment of stone. Beside some silver vases lay another skeleton, probably of a slave.

"The houses of Sallust and of Pansa, the Temple of Isis, with



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BURNING THE DEAD BODIES AT ST. PIERRE.

In many cases the bodies were placed in piles and burned, but when they were found to be too decomposed to move, they were covered with straw, saturated with kerosene and then burned each by itself.



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**GHOULISH THIEVES LOOTING THE BODIES OF THE DEAD AND STEALING MONEY FROM THE RUINS-
ST. PIERRE.**

the juggling concealments behind the statues—the lurking place of its holy oracles—are now bared to the gaze of the curious. In one of the chambers of that temple was found a huge skeleton with an axe beside it; two walls had been pierced by the axe; the victim could penetrate no farther. In the midst of the city was found another skeleton, by the side of which was a heap of coins, and many of the mystic ornaments of the fane of Isis. Death had fallen upon him in his avarice, and Calenus perished simultaneously with Burbo! As the excavators cleared on through the mass of ruin, they found the skeleton of a man literally severed in two by a prostrate column; the skull was of so striking a conformation, so boldly marked in its intellectual as well as its worse physical developments, that it has excited the constant speculation of every itinerant believer in the theories of Spurzheim who has gazed upon that ruined palace of the mind. Still, after the lapse of ages, the traveler may survey that airy hall, within whose cunning galleries and elaborate chambers once thought, reasoned, dreamed, and sinned the soul of Arbaces the Egyptian.

“Viewing the various witnesses of a social system which has passed from the world forever—a stranger, from that remote barbarian Isle which the Imperial Roman shivered when he named, paused amidst the delights of the soft Campania and composed this history!”

CHAPTER XVI.

MODERN ERUPTIONS OF VESUVIUS.

Three Thousand People Killed in 1631—Connection Between Earthquakes and Volcanoes—The Eruption of 1779 a Magnificent Display—Modern Eruptions—Pictures Showing How "Vesuvius Sweated Fire."

Vesuvius is about eight miles from Naples, whose bay it overlooks, at the eastern extremity of a chain extending to the Island of Ischia, which was rent by an earthquake in March, 1881, and again in July, 1883. The whole Gulf of Naples was probably at one time a crater far vaster than any now upon the earth, the eastern end of a great rent in the earth's crust, when the internal heat of the earth was far greater than it now is. To conceive it so carries the mind back to years when the planet was young. Of this great ancient crater Etna was the western extremity and Stromboli in the center. Vesuvius itself seems not to have been the chief rent until 79 A. D., when Pompeii was destroyed and the ancient crater of Mount Somma, on the east and north, was separated from the present cone by a valley seven hundred feet wide. The base of the mountain is over thirty miles in circumference, is 2,300 feet to the base of the cone, and the cone itself is 1,900 feet in height. The top is cut off some two thousand feet in diameter with a crater five hundred feet deep.

The Vesuvius of the ancients was a cone with its top cut off, having a base of eight or nine miles and a height of four thousand feet. Upon its summit was a depressed plain three miles in diameter. Only seven years before the eruption of 79 the gladiator, Spartacus, took refuge on this flat mountain-top, and was there besieged by the Romans. Vesuvius was never suspected of being a volcano. Its sides were covered with fields and vines, its crater overgrown with wild grapes. The great historic eruption, described in a previous chapter, formed the present crater, and in this the modern cone has been built up. The mountain has undergone great

changes during the last century and a half, its bulk and height being increased by its own ejections, even as an ant-hill grows.

DIFFERENT KINDS OF LAVA.

Some of its lavas, being very liquid, have flowed rapidly, and almost like water, for miles beyond its base. Others, much thicker than molasses, have advanced only an inch or two a day for several years. When the lava is slow in moving, as in 1358, it becomes wrinkled and folded; is coiled like ropes or twisted like molasses candy, the chilled surface being crumpled by the heaving mass below. When the lava rolls swiftly, as in 1872, it is broken into enormous, rough, cindery ridges, with much pouring forth of the imprisoned and pressing steam. Occasionally, as in 1660, ashes and smoke without lava have been ejected.

CONNECTION BETWEEN EARTHQUAKES AND VOLCANOES.

The frequent connection existing between earthquakes and volcanoes is shown by the history of Vesuvius and Etna. The earthquake of Melfi preceded the grand eruption of Etna in 1852; the earthquake of Basilicato, December, 1857, preceded the eruption of Vesuvius in 1858. So the Calabrian earthquakes preceded the eruptions of 1868 and 1871-72.

THREE THOUSAND PEOPLE KILLED IN 1631.

The principal eruptions of Vesuvius since the one that buried Pompeii have all occurred in the last two hundred and seventy years. The one of 1631 came on like the ancient one, suddenly and unexpectedly. It began on the 16th of December and continued till the next month. During a fortnight the cone lost very much of its height. The flow, like that from a guttering candle on an immense scale, nearly destroyed Torre dell' Anminziata, Torre del Greco, Resina and Portici on the southwest slope. Mud, lava and torrents of boiling water from the melted snow killed three thousand persons. The Italian town of Resina, thus devastated, was built on the site of Herculaneum, destroyed of old.

The eruption of 1779 was very grand. Stones were projected several thousand feet into the clouds of white vapor, with large masses of molten rock and columns of fiery matters. In June, 1794, Torre del Greco was again destroyed by lava, which flowed to the bay in a stream nearly a quarter of a mile wide and fifteen feet thick. The eruption of October, 1822, continued for nearly a month, rupturing the top of the cone and forming a crater three miles in circumference and about a thousand feet deep. In May, 1855, this symmetrical cone was again blown asunder. The flow continued twenty-seven days, and was very destructive to cultivated fields. In May, 1858, the Hermitage was nearly surrounded. In 1861 the eruption was very violent, but was of only seven hours' duration. It overwhelmed Torre del Greco, but on account of the intense cold the lava fortunately cooled very rapidly and was checked. In November, 1867, a cone about seventy feet in diameter, which had formed within the large crater in two years, poured out a great amount of lava. Beside the main stream from the great crater there was a flow from an outside orifice of twenty feet in diameter and twenty-five feet wide, rapidly reaching the bottom of the mountain. With loud roars and heavy shocks, through the glowing vapor, huge stones were sent many hundred feet high every few seconds. This eruption continued seven weeks and is regarded as one of the great ones.

The outbreak of April 24, 1872, had been preceded for several months by slight premonitory symptoms. Its greatest intensity was from the twenty-fourth to the twenty-sixth, after which it gradually diminished. The volcano had been quiet from 1868 until December, 1870, but early in 1871 Professor Luigi Palmieri established in the observatory, two thousand and eighty feet above the sea, upon the mountain, noted in quietude, the seismograph, an instrument with which, as it were, he counted the mountain's pulse. He prophesied an outburst. Cones formed during all that year and in the early months of 1872. Crowds of people from Naples ascended the mountain nightly to view the splendid fireworks of these forming cones. Several of these persons were buried by a flow of lava on April 26, from a rent in a cone on the northwest side. The Observatory was between two fiery torrents. The heat

was so intense that the window glass cracked and the furniture of the room scorched. The professor and his assistant went calmly on with their work, calculated the rate of the flow, and on the twenty-seventh, having seen twenty million tons of matter ejected and watched the gigantic serpents of fire gliding from the mountain, they calculated that twenty-four hours more of that would send the serpents' heads to the walls of Naples.

On the 27th the flow greatly lessened. Much of it covered the lava of 1868, but the damage done to fields and crops was estimated at three-quarters of a million dollars. The bottom of the crater was broken up, and the sides were fissured in all directions. Professor Palmieri said, "Vesuvius sweated fire." Thanks to him this eruption was the best observed that has ever occurred. Pictures taken by the instantaneous process show enormous volumes of globular, vaporous masses, with numerous fragments thrown several thousand feet in the air. Many of these went as far as the Observatory. Three principal fiery floods rushed down the mountain and far beyond its base, overwhelming San Sebastian, Massa and other hamlets, and many isolated houses. The streams gave off large clouds of steam, which formed miniature volcanoes in their course; the earth tremors and vibrations were constant, with vivid volcanic lightning from the intense electrical excitement of the uprising column, and heavy rains from the condensation of the immense amounts of watery vapor. The streets of Naples were covered several inches deep with black sand, and the flow was at least three-fifths of a mile wide at its lower portion. The people of Naples and the neighboring villages fled to the country with their movable valuables, fearing a catastrophe like that so vividly described by Bulwer in the extracts we have given from "The Last Days of Pompeii."

Beneath the column, which towered four miles above his head and spread out like a pine tree, between vast rivers of fire, far up on the mountain side, stood the scientist, Palmieri, calculating the flow, reproducing and preserving the terrific scene, a splendid type of the clear, unterrified, because unsuperstitious, brain of man.

CHAPTER XVII.

THE TERRIBLE ERUPTION OF KRAKATOA.

Until Recently Krakatoa Almost Unknown—First Signs of Eruption—Air Filled with Fine Dust and Air Waves Encircle the Earth—Remarkable Phenomenon in 1883—Terrific Eruption in That Year—Most Tremendous Explosion Ever Known.

We preface the story of Krakatoa by a recent account of it by the eminent Sir Robert Ball.

“The extraordinary vehemence that a volcanic eruption sometimes attains,” says he, “may be specifically illustrated by the case of the great eruption at Krakatoa. It is indeed believed that in the annals of the earth there has been no record of a volcanic eruption so vast as that which bears the name of this little island in the far Eastern seas, 10,000 miles from our shores.

KRAKATOA ALMOST UNKNOWN.

“Until the year 1883 few ever heard of Krakatoa. It was unknown to fame as are hundreds of other gems of glorious vegetation set in tropical waters. It was not inhabited, but the natives from the surrounding shores of Sumatra and Java used occasionally to draw their canoes upon its beach while they roamed through its jungles in search of the wild fruits that abounded there.

“In 1883 Krakatoa suddenly sprang into notoriety. Insignificant though it had seemed hitherto, the little island was soon to compel, by its tones of thunder, the whole world to pay instant attention. It was to become the scene of a volcanic outbreak so appalling that it is destined to be remembered throughout the ages.

FIRST SIGNS OF ERUPTION.

“In the spring of that year there were symptoms that the volcanic powers in Krakatoa were once more about to awake from their slumbers, that had endured for many generations. Notable

warnings were given. Earthquakes were felt and deep rumblings proceeded from the earth, showing that some disturbance was in preparation and that the old volcano was again to burst forth after its long period of rest.

“At first the eruption did not threaten to be serious, in fact, the good people of Batavia, so far from being terrified at what was passing in Krakatoa, thought the display was such an attraction that they chartered a steamer and went forth for a pleasant picnic to the island.

“With cautious steps the more venturesome of the excursion party clambered up the sides of the volcano, guided by the sounds which were issuing from its summit. There they beheld a vast column of steam pouring forth with terrific noise from an opening about thirty yards in width.

“As the summer advanced the vigor of Krakatoa steadily increased. The noises became more and more vehement. They were presently audible on shores ten miles distant and then twenty miles distant; and still these noises waxed louder and louder, until the great thunders of the volcano, so rapidly developing, astonished inhabitants that dwelt over an area at least as large as Great Britain, and there were other symptoms of the approaching catastrophe.

AIR FILLED WITH FINE DUST.

“With each successive convulsion a quantity of fine dust was projected aloft into the clouds. The wind could not carry this dust away as rapidly as it was hurled upward by Krakatoa and the atmosphere became heavily charged with the suspended particles. A pall of darkness thus hung over the adjoining seas and islands. Such was the thickness and the density of the atmospheric volumes of Krakatoa dust that for a hundred miles around the darkness of midnight prevailed at midday.

“This supreme effort it was which produced the mightiest noise that, so far as can be ascertained, has ever been heard on this globe. It must have been indeed a loud noise which could travel from Krakatoa and preserve vehemence over so great a distance, but we should form an inadequate conception of the energy of the Kra-

katoa if we thought that its sounds were heard by those merely a hundred miles off. This would be little indeed compared with what is recorded on testimonies which it is impossible to doubt.

“Westward from Krakatoa stretches the wide expanse of the Indian Ocean. On the opposite side from the Straits of Sunda lies the Island of Rodriguez, the distance from Krakatoa being almost 3,000 miles. It has been proved by evidence which cannot be doubted that the thunders of the great volcano attracted the attention of an intelligent coast guard on Rodriguez, who carefully noted the character of the sounds and the time of their occurrence. He had heard them just four hours after the actual explosion, for this is the time the sound occupied on its journey!

“Among the many other incidents connected with this explosion I may specially mention the wonderful system of divergent ripples that started in the atmosphere from the point at which the eruption took place. I have called them ripples from the obvious resemblance which they bear to the circular expanding ripples produced by raindrops which fall upon the still surface of the water, but it would be more correct to say that these were a series of great undulations which started from Krakatoa and spread forth in ever enlarging circles through our atmosphere.

AIR WAVES ENCIRCLE EARTH.

“The initial impetus was so tremendous that these waves spread for hundreds and thousands of miles. They diverged, in fact, until they put a mighty girdle round the earth, on a great circle, of which Krakatoa was the pole. The atmospheric waves, with the whole earth now well in their grasp, advanced into the opposite hemisphere. In their progress they had necessarily to form gradually contracting circles, until at last they converged to a point in Central America at the opposite point of the diameter of our earth, 10,000 miles from Krakatoa.

“Thus the waves completely embraced the earth; every part of our atmosphere had been set into a tingle by the great eruption. In Great Britain the waves passed over our heads; the air in our streets, the air in our houses, trembled from the volcanic impulse.

The oxygen supplying our lungs was responding also to the supreme convulsion that took place 10,000 miles away."

The explosion thus described by Sir Robert Ball set in motion air waves that traveled around the earth four times one way and three times the other. Every self-recording barometer on the globe was disturbed no less than seven times. These air waves traveled around the earth once in about thirty-six hours at the rate of 700 miles an hour, which is somewhat slower than sound waves travel.

The sound waves carried the notes of the explosion over distances far beyond anything else known in human experience of sound transmission.

SOUNDS HEARD FAR OFF.

All over Sumatra and Java the sounds were distinctly heard, which is as if all the people in Chicago should hear an explosion in Omaha. At St. Lucia Bay, 1,116 miles distant, the noise of the eruption was heard. It was heard at Tavoy, 1,478 miles distant; at Perth, 1,902 miles away; at Alice Springs, 2,233 miles distant; at Diego Garcia, 2,267 miles away; at Rodriguez, 2,968 miles from Krakatoa.

The sound of the Krakatoa explosion was heard over a zone covering one-thirteenth of the earth's surface.

It is estimated that ash and fragments from the cone of Krakatoa were lifted 50,000 feet in air, and that the finer particles of pumice were a year in reaching the earth again. With these ash layers drifting with the winds, the sunsets of that year were made remarkably brilliant and are remembered by most people old enough at the time to be attracted to the phenomenon.

Not only in this dust was the eruption made spectacular but vessels sailing the East Indian seas thereafter encountered such vast areas of floating pumice stone that navigation was seriously impeded. Gradually, however, this stone became waterlogged and sank. Every vestige of life on that and neighboring islands was destroyed.

One of the noteworthy facts connected with the destructive upheaval of Krakatoa was that the humble peak, less than 3,000

feet in height, had attracted no special attention among scientists because of the region in which it stood. It was located in the midst of about fifty towering volcanic mountains, some of them 12,000 feet high, and most of them in almost chronic disturbance. In the midst of these surroundings little Krakatoa was overlooked until almost ten years ago it broke out with terrible fury and wrought fearful loss of life and destruction of property.

For the first few hours terrific explosions came every few minutes. The sea was driven back, and at every outburst black columns of smoke, dust and lava were sent miles into the air. As the hours passed the explosions became more and more frequent. The concussions shattered stone walls, upset lamps, and created general havoc hundreds of miles away. The explosions were heard over a sound zone covering one-thirteenth of the earth's surface. All the towns and villages on the shores of Java and Sumatra bordering the straits were destroyed. The average height of the tidal wave which struck the shores of Java and Sumatra was fifty feet, and at many places it was much higher. The man-of-war Berouw, lying off the Sumatra shore, was carried a mile and three-quarters inland up a valley and left in a forest thirty feet above sea level. The sea waves were recorded at Colombo, 1,760 miles distant; at Bombay, 2,700 miles distant; at Cape Horn, 5,000 miles away. They traveled 350 miles an hour and their average height as shown by the gauges was from six to eighteen inches. A large part of the Indian Ocean was showered with lava dust and lava mud to a depth of several inches. This applies to an area of about half a million square miles. The mass of mud, ashes and lava dust blown out of Krakatoa would have formed a solid cube a mile and a quarter in each direction. That is four or five times more than Bandaisan threw out. In the immediate vicinity of Krakatoa the sea was so thick with fallen lava dust that vessels pushed through it as though plodding through a field of broken ice. The whole northern portion of the island, with an area of six square miles, and with an average height of 700 feet above sea level, was submerged, and remains so to-day under 150 fathoms of water. Two new islands thrust up their heads, and the whole configuration of the channel was changed.

A REMARKABLE PHENOMENON.

The observers say that a great quantity of the finer dust projected into the air remained in suspension there for over a year, and by a refraction of light caused the red and purple sunsets, the blue moons, and the copper suns that were seen all over the world from September, 1883, to the close of 1884.

From this it will be seen that though the number of lives lost is about the same, Krakatoa gave the earth itself a shock beside which the affair of Pelee is a trifle. No one lived on Krakatoa, no ships touched there. The island had a peak 3,000 feet high, a petty thing alongside of the forty-nine towering volcanoes of nearby Java, some 12,000 feet high. Science had never paid attention to Krakatoa.

It was too insignificant in appearance. Science might have ascertained that the crater of the island was largely submerged and included not only Krakatoa, but several other islands in the strait, but even science is stupid at times. As a matter of fact once, ages ago, Krakatoa was a gigantic mountain joining Java and Sumatra, and it had enormous height and a base girth of twenty-five miles. That was "the real volcano Krakatoa, after the work of its building up with lava layers had been completed, and before the phase of its self-destruction had begun."

But the pride of Krakatoa overcame her judgment. Swollen beyond control, she proceeded to tear herself to pieces, blowing her head and shoulders off, scattering her body far and wide, and finally leaving herself only a basal wreck to rest upon, and that half under water. Still, after all this occurred, so long ago that man forgot to remember it, Krakatoa remained the most dangerous volcanic focus on the surface of the earth.

It was nearly 200 years before Krakatoa spoke again. On Sunday morning, May 20, 1883, she began to rouse herself, just as Pelee did, with ample warning to the world to get out from under. And the world, as at Martinique, smiled in egotistical wisdom and would not be warned.

Krakatoa first sent up a gush of steam and ashes and gave that roar which was heard at Batavia. Then followed three months of

silence. But during these three months a second and third crater opened; there were white hot chasms below the level of the sea, sending up to the waves their hissing challenge. After a time millions of tons of water surged downwards and the battle was on. This was Sunday afternoon, August 26, 1883. For a few hours the earth fires and sea water produced terrific explosions. Black columns were sent miles into the air, carrying with them steam, smoke, ash and pumice. As night came on an eye-witness has described the scene:

“Krakatoa was a terrifying glory. From a distance of forty miles it looked like an immense wall, with bursts of forked lightning darting through it, and blazing serpents playing over it. These bursts of brilliancy were the regular uncoverings of the angry fires. As the hours passed the sea gained an advantage through fresh breaks in the crater walls that offered new points of attack.

“The explosions became more and more frequent until about midnight they sounded to the people of Batavia and Buitentong like one continuous roar, the noise making it impossible for the inhabitants of these places to sleep. The concussion shattered stone walls, upset lamps, tore gas meters from their fixings. And yet Batavia is as far from Krakatoa as London is from Portsmouth.”

FINE ELECTRIC DISPLAY.

Through all that Sunday night electricity did wonderful things in the heavens. Sailors saw balls of fire resting on the mastheads of their ships and lightning struck the mainmasts. The climax came at 10 o'clock the next morning. What caused the frightful shock is yet a problem. Did the earth open in one gigantic fissure and call the sea down for a final desperate encounter, or was there a sudden subsidence of strata to fill in the hollows left by what had been ejected? The question has not been answered.

“But there came an explosion so loud, so violent, and with such far-reaching effects, that it made what had gone before seem as child's play in comparison, and made all other explosions known to the earth in historic times dwindle into insignificance.”

THE ERUPTION OF KRAKATOA IN 1883 AND THE DESTRUCTION OF THIRTY-SIX THOUSAND SOULS.

During the closing days of the month of August, 1883, occurred a terrible subterranean convulsion—one which in its destructive results to life and property and in the startling character of the world-wide effects to which it gave rise, is perhaps without a parallel in historic times. In that eruption 36,000 people lost their lives.

The towns and villages along the shores of the Sunda Strait between the Islands of Java and Sumatra, were, during the crisis of the eruption, enveloped in a terrible darkness, which lasted for many hours, and while thus obscured were overwhelmed by a succession of great sea waves. For some time after the eruption Sunda Strait was almost impassable; lighthouses had been swept away; all the old familiar landmarks on the shores were obscured by a vast deposit of volcanic dust; the sea itself was encumbered with enormous masses of floating pumice, in many cases of such thickness that no vessel could force its way through them, and for months after the eruption one of the principal channels was obstructed by two new islands which had arisen in its midst. The center of the volcanic disturbance was the Island of Krakatoa. The efforts of the Dutch Indian Government were at once directed to taking measures for the safety and relief of the survivors of the terrible catastrophe, and for restoring the navigation of the great marine highway, and a man-of-war was dispatched to the Strait to visit the posts and penetrate as far as possible into the great bays on both sides of the Strait. The Sunda Strait, connecting as it does the China Sea with the Indian Ocean, is one of the most important commercial highways on the globe, and many hundreds of vessels pass through it every year. During the eruption a number of ships passed near enough to see it and far enough to escape destruction.

BEGAN WITH RAIN OF DUST.

An eruption of Krakatoa began on the 30th of May, 1883, bursting out with somewhat sudden violence and carrying a rain

of volcanic dust to various points along the shores of Java and Sumatra. After this sudden outburst there was a marked and rapid decline in violence, and then a gradual increase till June 24th, when a second crater had opened in the center of the island. The eruptive force still increasing, a third crater made its appearance, and innumerable smaller vents were originated all over the surface of the filled-up crater of the great ancient volcano. From this time the activity constantly increased, till its grand culmination on the 27th of August.

REACHES THE VESUVIAN STAGE.

On the afternoon of the 26th of August it was evident that the long-continued moderate eruptions of Krakatoa had passed into the paroxysmal or Vesuvian stage. At numerous small towns and villages along the Javan and Sumatran coasts of the Strait of Sunda, and in the five lighthouses, two of which were destroyed, were European officials. Many of them fled during the terrible night of the 26th of August, and others were drowned by the great sea waves, similar to the fatal wave at Lisbon. These waves submerged all the coast towns on the morning of the 27th. Only three European ships which were actually in the Strait of Sunda during that night of horrors escaped destruction. One of the survivors was the British ship *Charles Bal*, which was within a dozen miles of the volcano. A Batavian steamship passed thirty miles north of Krakatoa and, being unable during the storm which was raging to reach the pier at the port of Telok Betong, steamed out into the bay and anchored. This saved her from being stranded by the great sea waves which next morning destroyed many other ships. In the rush of these waves over the land all vessels near the shore were stranded, the towns and villages along the coast devastated, two of the lighthouses swept away, and the lives of 36,380 of the inhabitants were sacrificed.

AWFUL NOISES OF THE NIGHT.

The detonations caused by the explosive action grew loud enough by one o'clock of the 26th to be heard at Batavia, 100 Eng-

lish miles from Krakatoa. Captain Thompson of the *Medca*, seventy-six miles from the volcano, saw at 2 o'clock "a black mass rising up like smoke in clouds" to an altitude which has been estimated to have been seventeen miles in the air. Vesuvius in 1872 sent up a column of steam and dust only four or five miles. The detonations came about every ten minutes. By three o'clock they were grown so loud as to be heard at Bandong, 150 miles away, and at five they had become so tremendous that they were heard all over the Island of Java. At Batavia they were, during the whole night, so violent that no one could sleep, the noise being like the discharge of artillery close at hand. To the men in vessels the sky presented a most terrible appearance, the dense mass of clouds being covered with a murky tinge, with fierce flashes of lightning. The dust clouds and dense vapor rendered it intensely dark, the whole scene lighted up from time to time by lurid lightning, and at one time the solid cloud above the mountain looked like an immense pine tree, with stem and branches formed of volcanic lightning. The air was loaded with fine ashes and there was a strong sulphurous smell, the vessels passed through a rain of mud which formed on the decks at the rate of six inches in ten minutes. Chains of fire ascended between volcano and sky, while on the southwest side of the crater there was a continuous roll of enormous balls of white fire.

MOST TREMENDOUS EXPLOSION EVER KNOWN.

Up to late in the afternoon of the 26th the eruption of Krakatoa was similar to other great eruptions, and nothing had occurred which resulted in great loss of human life. At that time, however, the volcano had blown away its walls till the process could go no further without the waters of the ocean rushing into the heated mass of lava from which the eruption was taking place. This water did rush in, and in the end gave rise to a series of tremendous explosions. Of these the third occurring at 10 o'clock on the morning of the 27th of August annihilated the whole of the northern and lower portions of the island of Krakatoa with the exception of a bank of pumice and a rock of solid pitch stone ten

yards square, which was left standing above the ocean with deep water all around it. At the same time a large portion of the northern part of the basaltic cone of Rakata was destroyed and a vertical cliff formed. On the spot where Krakatoa had reached 1,400 feet into the air the sea rolled 1,000 feet deep. Two-thirds of the original island had blown up.

HEARD 3,000 MILES AWAY.

The sound of these explosions was heard at Rodriguez, 3,080 (three thousand and eighty) English miles away. Windows burst and walls cracked in Batavia, 100 miles away, not from earthquake but from the effect of air waves. The explosions declined in violence, and finally ceased to be heard at Buitenzorg, 100 miles away, at 2:30 a. m. on Tuesday, August 28th.

SEA WAVE COMPLETES DESTRUCTION.

A fairly large sea wave at 5 o'clock on the 26th reached the Java shore at Tyringin, twenty-four miles from Krakatoa, where it destroyed many houses near the sea. A little later a wave caused considerable damage at Telok Betong, at the head of the Lampong Bay, in Sumatra, forty-four English miles away.

At 7 o'clock a low-lying Chinese camp at Merak was swept away. On the 27th, after the sea had rushed into the volcano, the village of Sirik, six miles south of the town of Anjer, was submerged, and five hours later a larger wave swept away nearly the whole town of Anjer. The destruction was completed by another wave an hour or so later, and at the same time the lower part of Telok Betong was overwhelmed. Some time after 10 o'clock came an immense wave which inundated the foreshores of Java and Sumatra and carried away all that was left of Tyringin, Merak and Telok Betong, as well as many other hamlets and villages near the shore. Terror and dismay reigned everywhere, and darkness settled over the land. At Anjer, where this great wave must have come, no one was left to see it, the few survivors of the first wave having fled to the hills.



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PARLIAMENT HOUSE, BRIDGETOWN, ISLAND OF BARBADOS.

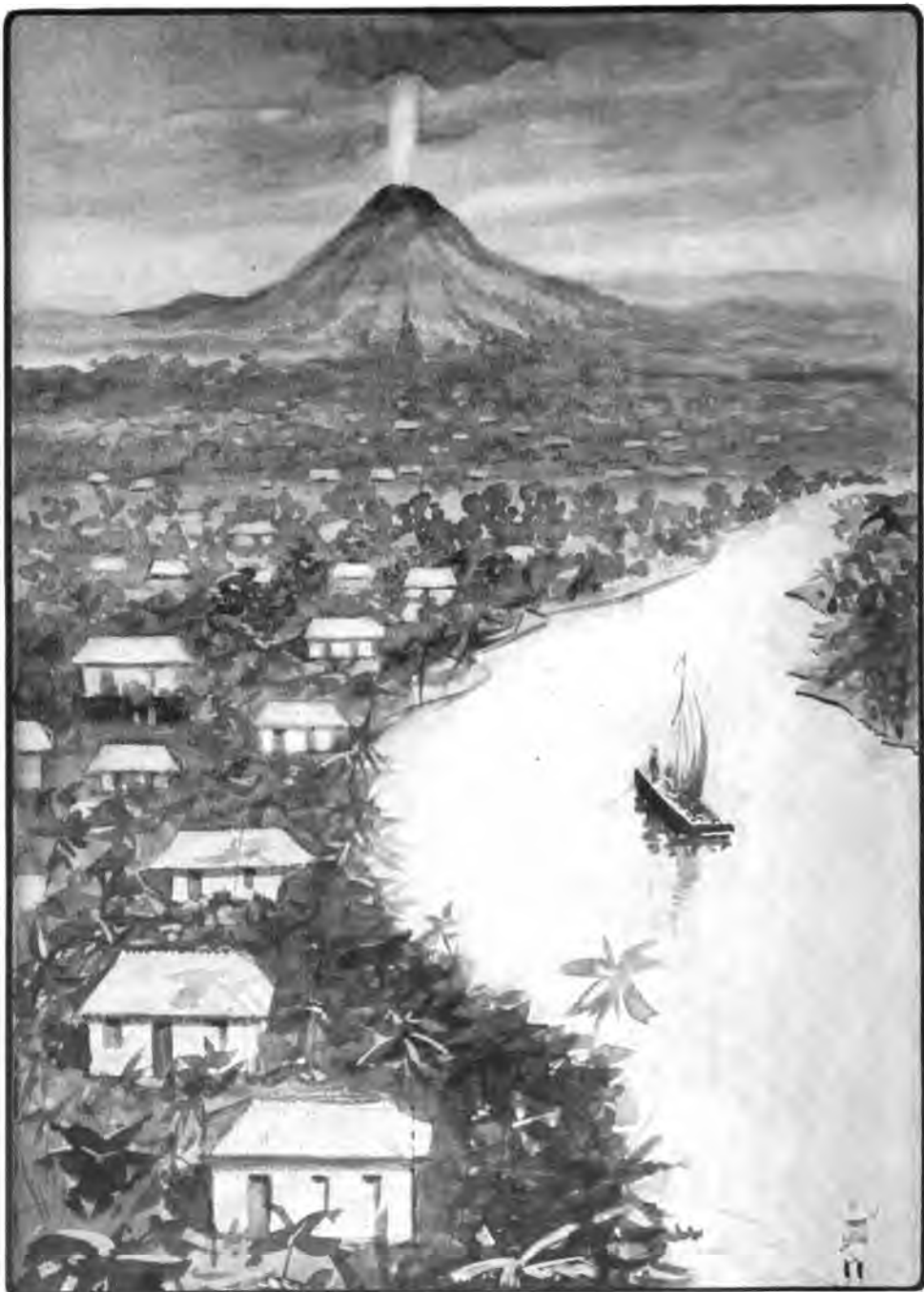
There are enacted here all the laws for the group of islands in the Lesser Antilles, belonging to the British West Indies.



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DOING THE FAMILY WASHING.

The above picture is from the photograph taken at British Guiana. It is interesting, as this town is located near the scene of the volcanic disturbance of the West Indies, and the country to which the British authorities may deport the St. Vincent survivors.



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MONT GAROU SOUFRIERE, ISLAND OF ST. VINCENT.

The death-dealing volcano of the West Indian British possessions. It is estimated that during the recent eruption thousands of people lost their lives.

WAVE ONE HUNDRED AND THIRTY-FIVE FEET HIGH.

This wave was estimated to have swept the land to a height of 135 feet in the funnel-shaped strait leading up to Merak, thirty-three miles from Krakatoa. People who escaped the first waves and, warned by them, succeeded in the darkness in gaining the hills back of the plains lying next the shores, were the only ones who escaped. As already stated, thirty-six thousand three hundred and eighty souls failed to gain the hills and were destroyed.

CHAPTER XVIII.

HAWAIIAN ERUPTIONS AND THE FAMOUS KILAUEA AND MAUNA LOA.

Magnificent Description by an Eye-Witness—A River of Molten Metal—Continual Stream of Lava Heats the Ocean for a Distance of Twenty Miles—Mauna Loa's Crater the Largest of Any Volcano in the World.

In 1789 an eruption from the volcano Kilauea in Hawaii caused the death of a hundred men by the hot and poisonous gases thrown off. In extent of damage to human life this eruption does not compare with other great catastrophes, but the splendor of its eruption in 1840 is so well described by an eye-witness that we give his letter enabling the reader to imagine the appearance of the deadlier rivers of fire which rush down volcanic slopes.

"For several years past," writes the witness, the Rev. Titus Coan, "the great crater of Kilauea has been rapidly filling up by the rising of the crust and by the frequent gushing forth of the molten sea below. In this manner the great basin below the black ledge, estimated to be five hundred feet deep, was long since filled by the ejection and cooling of successive masses of the fiery fluid. These silent eruptions continued to occur at intervals until the black ledge was repeatedly overflowed, each cooling and forming a new layer from two feet thick and upwards until the whole area of the crater was filled up, at least fifty feet above the original black ledge, and thus reducing the whole depth of the crater to less than nine hundred feet. This process continued to the latter part of May, 1840, when the whole area of the crater became one entire sea of ignigenous matter, raging like old ocean when lashed into fury by a tempest. For several days the fires raged with fearful intensity. The infuriated waves sent up infernal sounds, and dashed with such energy against the sides of the awful cauldron as to shake the solid earth above, and to detach huge masses of overhanging rocks, which, leaving their ancient beds, plunged into the fiery gulf below. So terrific was the scene that no one dared

to approach it, and travelers on the main road, which lay along the verge of the crater, feeling the ground tremble beneath their feet, fled and passed by at a distance.

A RIVER OF MOLTEN METAL.

"On the 30th of May the people of Puna observed the appearance of smoke and fire in the interior, a mountainous and desolate region. Thinking it might be some burning jungle they took little notice of it till the next day, Sunday, when meetings in the different villages were thrown into confusion by sudden and grand exhibitions of fire, on a scale so large and fearful as to leave them no room to doubt the cause of the phenomenon. The fire augmented during the day and night; but it did not seem to flow off rapidly in any direction. All were in consternation, as it was expected that the molten flood would pour itself down from its height of four thousand feet to the coast, and no one knew to what point it would flow, or what devastation would attend its fiery course. On Monday, June 1st, the stream began to flow off in a northeasterly direction, and on the following Wednesday, June 3d, at evening, the burning river reached the sea, having averaged about half a mile an hour in its progress. The rapidity of the flow was very unequal, being modified by inequalities in the surface over which the stream passed.

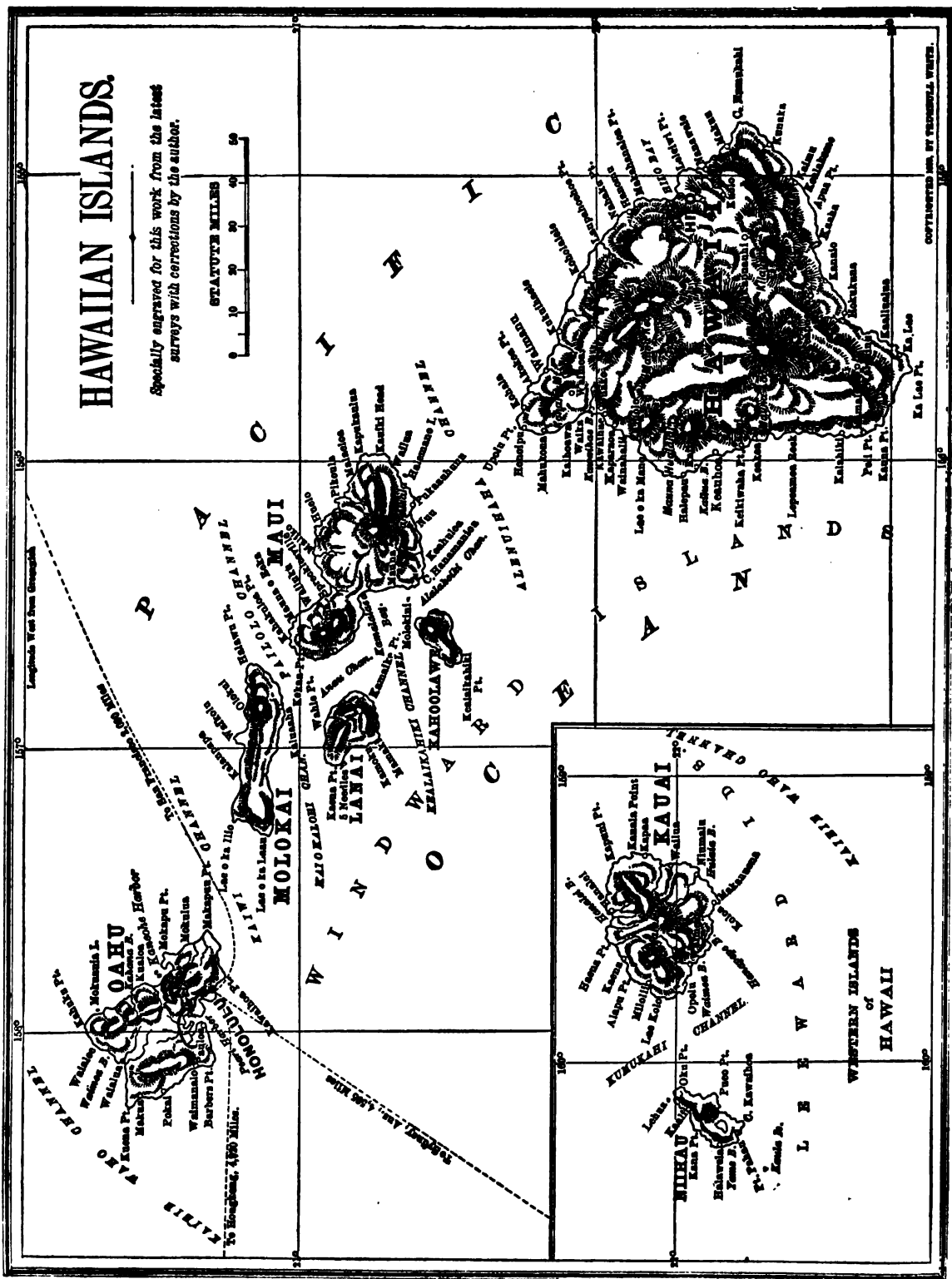
A CONTINUAL STREAM OF LAVA.

"Sometimes it seemed to move five miles an hour, and at others, owing to obstructions, it made no apparent progress except in filling up deep valleys, and in swelling over or breaking away hills and precipices.

"The source of the eruption is in a forest, and in the bottom of an ancient, wooded crater, about four hundred feet deep, and probably eight miles east of Kilauea. From Kilauea to this place the lava flows in a subterranean gallery probably at the depth of a thousand feet, but its course can be distinctly traced all the way by the rending of the crust of the earth into innumerable fissures, and by the emission of smoke, steam and gases. The eruption in

HAWAIIAN ISLANDS.

Specially engraved for this work from the latest surveys with corrections by the author.



MAP OF THE HAWAIIAN ARCHIPELAGO, SHOWING THE VOLCANOES MAUNA LOA AND KILAUEA.

this old crater is small, and from this place the stream disappears again for the distance of a mile or two, when the lava again gushes up and spreads over an area of about fifty acres. Again it disappears and at some places it is impossible to trace its subterranean channel. After flowing underground several miles, perhaps six or eight, it again broke out like an overwhelming flood, and sweeping forest, hamlet, plantation, and everything before it, rolled down with resistless energy to the sea, where, leaping a precipice of forty or fifty feet, it poured itself in one vast cataract of fire into the deep below with loud detonations, fearful hissings, and a thousand unearthly and indescribable sounds. Imagine to yourself a river of fused minerals, of the breadth and depth of Niagara, and of a deep, gory red, falling in one emblazoned sheet, one raging torrent, into the ocean. The atmosphere in all directions was filled with ashes, spray, gases, etc.; while the burning lava as it fell into the water was shivered into millions of minute particles, and being thrown back into the air fell in showers of sand on all the surrounding country. The coast was extended into the sea for a quarter of a mile, a sand beach and a new cape being formed. Three hills of scorix and sand were also formed in the sea, the lowest about two hundred, the highest about three hundred feet.

OCEAN HEATED FOR TWENTY MILES.

“For three weeks this terrific river disgorged itself into the sea with little abatement. Multitudes of fishes were killed, and the waters of the ocean were heated for twenty miles along the coast. The breadth of the stream where it fell into the sea is about half a mile, but inland it varies from one to four or five miles in width, conforming itself like a river to the face of the country over which it flowed. The depth of the stream will probably vary from ten to two hundred feet, according to the inequalities of the surface over which it passed. During the flow night was converted into day on all eastern Hawaii; the light was visible for more than one hundred miles at sea; and at the distance of forty miles fine print could be read at midnight.

THE MOLTEN RIVER STILL ALIVE.

“The whole course of the stream from Kilauea to the sea is about forty miles. The ground over which it flowed descends at the rate of one hundred feet to the mile. The crust is now cooled, though scalding steam, pungent gases and smoke are still emitted in many places. In pursuing my way for nearly two days over this mighty smoldering mass I was more and more impressed at every step with the wonderful scene. Hills had been melted down like wax; ravines and deep valleys had been filled; and majestic forests had disappeared like a feather in the flames. On the outer edge of the lava where the stream was more shallow and the heat less vehement, and where the liquid mass cooled soonest, the trees were mowed down like grass before the scythe, and left charred, crisp, smoldering, and only half consumed.”

LIKE CLOTTED BLOOD.

During the progress of the descending stream it would often fall into some fissure, and forcing itself into apertures and under massive rocks, and even hillocks and extended flats of ground, and lifting them from their ancient beds bear them with all their mass of soil, trees, etc., on its viscous and livid bosom like a raft on the water. When the fused mass was sluggish, it had a gory appearance like clotted blood, and when it was active, it resembled fresh and clotted blood mingled and thrown into violent agitation.

Such a river as this, from this same crater of Kilauea, rushed down twenty years later and overwhelmed hundreds of human beings. Such a river as this, but on a steeper slope and with a swifter current swept over tragic St. Pierre in Martinique.

With the annexation of the Hawaiian Islands the United States acquired the greatest volcano in the world. Soon after this annexation Kilauea tried to show itself to a spectacular advantage, but the display did not last long. This vast crater of Kilauea is always active in a sense, however, and at least ten times in the last century it gave demonstrations of its power. In 1855 the great crater, more than three miles across, poured 38,000,000,000 cubic feet of molten lava down the sides of the cone. In 1859 a stream of lava ran fifty

miles from the mountain, covering the distance in eight days. In these islands, also, the United States government acquired some other mighty volcanoes. Mauna Kea, Mauna Loa, and Mauna Hualali are three of the principal cones, the two first named standing more than 18,000 feet high. Kilauea, as an active crater, however, is greatest of all, presenting the picture of a lake of fire and brimstone nearly nine miles in circumference. Looking over this vast lake of fire, at boiling point, one sees vapors rising through the molten mass, lifting balloon-like cones of molten rock from the surface, spreading them, and finally bursting the balloon, sending fiery showers into the air, the hot liquid falling back, unsolidified, into the cauldron. Everywhere this process of bubble-making and bubble-breaking is going on, throwing a continuous shower of fiery spray into the air.

When this great cauldron overflowed in 1840 it had been preceded by violent earthquakes. On this occasion the lava flowed through some subterranean fissure, emerging from the earth at a height of 1,250 feet above sea level. In two days it had traveled eleven miles, plunging into the ocean with tremendous detonations. So much lava was exuded that the coast line was extended more than a quarter of a mile, and the surrounding ocean was so heated that dead fish floated ashore for ten miles on each side of the cataract.

MAUNA LOA.

How many lives Mauna Loa of Hawaii has taken in the past is not known. The crater of Mauna Loa is the largest of active volcanoes in the world. The last eruption, in 1899, sent out a vast stream of lava that almost reached Hilo, but only a few lives were lost. Still the explosions were so strong that Los Angeles suffered from the severest earthquake in its experience, and in Lake Superior a great tidal wave rose on the south shore.

The Alaskan coast was also shocked and about one-fifth of the earth's area affected by the blowing off of Hawaii's volcanic queen. The Hawaiian group of islands is entirely of volcanic formation, and it is current belief of the natives that as the islands rose from the waters by fire so they will eventually disappear beneath the waters again.

ERUPTION OF 1868 DESCRIBED BY AN EYE WITNESS.

Charles G. Williamson says: In 1868 I was an eye-witness of the great eruption of Mauna Loa in the island of Hawaii. At the present moment a few details of that appalling circumstance may be of general interest. Mauna Loa (the long mountain) is the highest peak between the Andes and Himalaya Mountains, and its great summit crater Mokuaweoweo had been cold and extinct for ages. The first indication of what was going to happen was an earthquake at 5 a. m. on March 9. On March 26 I observed, after sunset, many bright flashes in the sky which could not be accounted for, as the air was perfectly clear, and no cloud was visible in any direction. The following morning my native servant came calling me with the cry of fire. Looking out, I saw a heavy column of smoke rising from the mountain summit, and it spread out like a huge fan, widening and widening until the whole vicinity was enwrapped in murky sulphurous vapor, totally obscuring the sun, and causing all vegetation to shrivel up. When night came there was no appearance of fire on the mount, but the dense atmosphere remained. Next morning about 10:15 there began a series of most alarming earthquakes, which culminated in an awful shock on Thursday, April 2, at 3:40 p. m. The earth rose and fell like waves of the sea; and the large native kukui trees, with trunks from two to three feet diameter, swayed backwards and forwards like brambles in a storm, though not a breath of air was moving. Every stone wall was leveled in an instant as the seismic wave passed under them, and when it reached the sea the concussion caused the cliffs to fall in huge masses, and the waters rose and fell six times in twenty minutes, overwhelming the palm trees and the picturesque grass houses of the natives, resulting in the destruction of more than one hundred houses and loss of forty-six lives, in a very thinly populated district. The earthquakes, I may say, continued for days after; indeed, the whole island seemed to rock about continuously, and it was months before the earth ceased to vibrate. In my diary of that year there is a record of 157 distinct shocks personally experienced in the week before the great earthquake of April 2, and 122 shocks in the six days immediately after it, but almost every day until the end of 1868 there was one or more slight, but perceptible, earth tremors.

Shortly after the terrible earthquake there was an eruption of an extraordinary character. It is marked in my diary as on April 7, when at about 5 p. m. the earth burst open with a tremendous crash on the mountain slope, about ten miles from the sea. Here was the residence of an Englishman at whose house I had been hospitably entertained a short time before. The earth opened with a terrific explosion, pouring out streams of liquid fire, which in an incredibly short space of time covered the most beautiful grass-covered plateau of the island. The house and gardens were completely submerged and the inhabitants only escaped by racing in front of the pursuing flood of fire, which was about half a mile wide. A fine horse, belonging to the owner of the buried residence, was tethered in a pasture, and made frantic efforts to break its halter, but when the rushing lava reached it, the rope shriveled up and the beautiful creature bounded away without any hurt; but a herd of 200 cattle was overtaken and in a moment disappeared. Thirty-seven houses were swept away by the lava flow, but no lives were lost. There was a house, containing three persons, which was entirely surrounded by the flowing lava, which, piling itself up above the roof level, left the building untouched, and the inmates were found to be alive and unhurt when the lava had cooled sufficiently to allow any one to succor them.

But this was only an incident of the period. The great earthquake shock previously spoken of was caused by the blowing up of another part of the mountain. On this occasion great masses of shattered rock were hurled through the air to a considerable distance, and streams of hot mud poured over the land to a distance of three miles from the source of the explosion. It may not be scientifically correct to speak of it as a mud flow; it was probably a terrific landslide caused by the violent upheaval, but in its way it carried away magnificent trees and cyclopean blocks of rock. Ten houses were destroyed in its course, and thirty-one lives were lost. Needless to say, the whole neighborhood was rent and cracked by the volcanic convulsion. Had it happened in any thickly-populated district, the loss of life would probably have been as appalling as it is in the island of Martinique.

CHAPTER XIX.

VOLCANOES OF THE PHILIPPINE ISLANDS.

Famous Volcanoes Now Possessions of the United States—The Mayon in Province of Luzon—Taal South of Manila—Many Destructive Eruptions.

When the Philippine Islands were ceded to the United States by Spain she came into possession of several volcanoes that are prepared at any time to compete with those of any other nation for picturesque display or awful destruction.

Most of the islets, if not indeed the whole archipelago, are of volcanic origin. There are many volcanoes, two of them in almost constant activity, viz., the Mayon, in the extreme east of Luzon Island, and the Taal volcano, in the center of Bombon Lake, thirty-four miles due south of Manila. Also in Negros Island the Canlauan volcano is occasionally in visible eruption. In 1886 a portion of its crater subsided, accompanied by a tremendous noise and a slight ejection of lava. In the picturesque Island of Camiguin a volcanic mountain suddenly arose from the plain in 1872.

THE MAYON.

The Mayon volcano is in the Province of Albay, hence it is popularly known as the Albay volcano. Around its base there are several towns and villages, the chief being Albay, the capital of the province, Cagsauga (called Daraga) and Camalig on the one side, and Malinao, Tobacco, etc., on the side facing the east coast. In 1769 there was a serious eruption, which destroyed the towns of Cagsauga and Malinao, besides several villages, and devastated property within a radius of twenty miles. Lava and ashes were thrown out incessantly during two months, and cataracts of water were formed. In 1811 loud subterranean noises were heard proceeding from the volcano, which caused the inhabitants around to fear an early renewal of its activity, but their misfortune was postponed. On the 1st of February, 1814, it burst with terrible vio-

lence. Cagsauga, Badião, and three other towns were totally demolished. Stones and ashes were ejected in all directions. The inhabitants fled to caves to shelter themselves. So sudden was the occurrence that many natives were overtaken by the volcanic projectiles and a few by lava streams. In Cagsauga nearly all property was lost. Father Aragonese estimates that 2,200 persons were killed, besides many being wounded.

An eruption took place in the spring of 1887, but only a small quantity of ashes was thrown out and did very little or no damage to the property in the surrounding towns and villages.

The eruption of the 9th of July, 1888, severely damaged the towns of Libog and Legaspi, plantations were destroyed in the villages of Bigaa and Bonco, several houses were fired, others had the roofs crushed in, a great many domestic animals were killed, fifteen natives lost their lives, and the loss of live stock (buffaloes and oxen) was estimated at 500. The ejection of lava and ashes and stones from the crater continued for one night, which was illuminated by a column of fire.

The last eruption occurred in May, 1897. Showers of red-hot lava fell like rain in a radius of 20 miles from the crater. In the immediate environs about 400 persons were killed. In the village of Bacacay houses were entirely buried beneath the lava ashes and sand. The road to the port of Legaspi was covered out of sight. In the important town of Tobacco there was total darkness and the earth opened. Hemp plantations and a large number of cattle were destroyed. In Libog over 100 inhabitants perished in the ruins. The hamlets of San Roque, Misericordia and Santo Nino, with over 150 inhabitants, were completely covered with burning debris. At nighttime the sight of the fire column, heaving up thousands of tons of stones, accompanied by noises like the booming of cannon afar off, was indescribably grand, but it was the greatest public calamity which had befallen the province for some years past.

The mountain is remarkable for the perfection of its conic form. Owing to the perpendicular walls of lava formed on the slopes all around, it is not possible to reach the crater. The elevation of the peak has been computed at between 8,200 and 8,400 feet.

Professor John Foreman of England visited the volcano at the time of its last eruption, and describes it as follows: "I have been around the base on the east and south sides, but the grandest view is to be obtained from Cagsauga (Daraga). On a clear night when the moon is hidden a stream of fire is distinctly seen to flow from the crest."

MAYON.

The most notable eruption of the volcano of Mayon is described by Professor Samuel Kneeland in his "Volcanoes and Earthquakes" as follows:

"In the latter part of December, 1881, I found myself on board a steamer bound for Iloilo, to the Island of Luzon, in the Province of the Camarines, and especially to that part of the island known as Legaspi, on the eastern side of the peninsula on which the volcano of Mayon is situated.

"We had the first sight of the mountain of Mayon on the western side, at Donsol, watching it until late at night, when the view was cut off by the high lands around which we were to sail. We passed through the Straits of San Bernardino to Legaspi, and by daybreak we had rounded the point where we again beheld Mayon to the west of us.

"There is something grand in this symmetrical peak, a typical volcano, rising over seven thousand feet from the water's edge, and displaying here, on the verge of the Pacific, its pillar of cloud by day and its pillar of fire by night. It is the beacon of the mariner coming westward from Polynesia, with no land to the east nearer than the Ladrone or Marianne Islands, over one thousand two hundred miles away.

"Landing at Legaspi we rode to Daraga, a few miles distant, to get the nearest and best view of the volcano, and to see the traces of the great eruption of 1814, which destroyed the old town, then situated higher up the mountain. The new town of Daraga is within five miles of the base of the mountain; near it are the remains of the church and other buildings then overwhelmed, their ruins projecting from the masses of rocks and ashes. Pieces of lava six feet in diameter were thrown from the crater to a distance of five miles.

"During our Christmas dinner the summit was all ablaze, and presented the most magnificent volcanic exhibition I ever witnessed. It was neither so awe-inspiring as Kilauea nor so terrible as the fiery shower at the top of Vesuvius, already described; but it was majestic in the distance which assured safety, sublime in its altitude and glorious in its constant outpouring of red-hot lava which trickled down its side like a cataract of fire. We had rare glimpses of the summit during the day, which was cloudy, but at night could only see the lurid glow which showed that the cauldron was still running over.

"During the forenoon a crack opened on the Legaspi side, considerably below the top. From this was sent out an immense quantity of white smoke or vapor and clouds of ashes, which settled near its source. During the night there was a hardly perceptible earthquake trembling; but these disturbances are very common, though severe ones are rare, perhaps on account of the proximity of Mayon's safety valve.

"The cone of Mayon is one of the most symmetrical in the world, both to the naked eye and through a glass; its lavas are mostly felspathic, being doleritic, like those of Etna. I obtained and brought home many characteristic specimens of the old and the new lava, taken from as high up the mountain as the barefooted natives could go.

"By day I could detect no movement, as this was chiefly beneath the rapidly cooling external crust. I could see only the curling, light-colored vapor; the black lava, apparently still; calcined reddish-white and yellowish rocks, and beds of grayish cinders of considerable size and great steepness. Green vegetation extends far up and in pointed tongues amid the desolation of the peak, where it is not destroyed by the heat or rendered impossible of growth by lava.

"At night the scene was truly magnificent and unique. At the date of my visit the volcano had poured out, for five months continuously, a stream of lava on the Legaspi side from the very summit. The viscid mass bubbled quietly but grandly, and overran the border of the crater, descending several hundred feet in a glowing wave, like red-hot iron. Gradually fading as the upper surface

cooled, it changed to a thousand sparkling rills among the crevices, and, as it passed beyond the line of complete vision behind the woods near the base, the fires twinkled like stars, or the scintillations of a dying conflagration. More than half of the mountain height was thus illuminated.

"Mayon has always been an object of superstitious fear to the natives, and a welcome light to the old Spanish galleons with their freight of silver from Acapulco. To remove the dread of the Indians it was visited in 1592 by two Franciscan monks, one of whom, Estaban Solis, is believed to have nearly, if not quite, reached the summit. At all events he ascended as far as the suffocating gases permitted, and far enough to satisfy these simple children of Nature that there dwelt in the fire mountain no evil spirit who could injure them. This fear removed, the natives came to the priests for baptism, and thus was laid the foundation for the Christian civilization of the district. It was literally a baptism of fire for the monk, for, though he returned apparently unharmed, he fell sick and died within a year after his terrible experience.

"It is stated that two young Scotsmen ascended to the crater in 1858. They found the task a very difficult one, as the steep cone was one mass of sand and cinders, interspersed with ragged clinkers and lava. They do not claim to have been there more than three minutes, on account of the sulphurous gases, and it is scarcely probable that they saw down into the crater, as they do not describe it. Then, as now, the ruddy glow of night gave place by day to the black and sombre colors of the lava, surmounted by the white vapor.

The first historic notice of the eruption of this volcano is that of 1616. The first destructive one was on October 23, 1766. It completely overwhelmed Malinao, and did great damage to the neighboring villages. It began on July 20, lasting six days, with a pyramidal light gradually diminishing. From the summit a stream of lava one hundred feet wide descended for two days to the east; on the twenty-third of October such a quantity of water was discharged, apparently from the volcano, but probably from some other source, that rivers eighty to two hundred feet wide rushed down its sides to the sea with such violence as to set back

the in-coming tide. A furious tempest raged from 7 p. m. to 3 a. m. from northwest to south, washing away the roads, and was, no doubt, the source of the water attributed to the volcano. I do not think there is any well-authenticated instance of a volcano throwing out water, except as this results from heavy rains, from melting snow or ice, or from elevated and dislocated lakes formed by subterranean upheavals or depressions.

The most destructive of the eruptions of Mayon was that of February 1, 1814. It began at 8 a. m. and was preceded by frequent earthquake shocks on the evening and morning before. There was suddenly shot out a column of stones, sand and ashes to a great height, obscuring the sides, down which a river of fire was seen to descend. As the darkness increased the people fled to the highest points; the glowing stones fell so thickly that there was no safety in the burning houses, and Daraga was turned to ashes. This was followed by a shower of sand until after noon. Where the day before had been cultivated fields was now only a barren waste of sand and stones to a depth of twenty to thirty feet. In some villages the cocoa palms were buried nearly to their tips, while in others the layer was scarcely a foot thick; the top of the mountain appeared to have lost over one hundred feet of its height.

Earthquakes are comparatively rare at Albay, though Sorsogon was almost destroyed in 1840, and the houses are not built, as in Manila, to withstand their shocks. Submarine disturbances are common. In 1865 Malinao and Tabaco were inundated by a tidal wave. A gentleman of Albay in 1853 says he ascended to or near the crater, and that the task was not difficult for a vigorous and expert climber. Whether he attained the summit or not is, of course, uncertain, but one fancies that the condition of the mountain is a far more important element for success than the strength of the man; human valor and endurance cannot prevail against lava currents, showers of burning cinders, and suffocating gases.

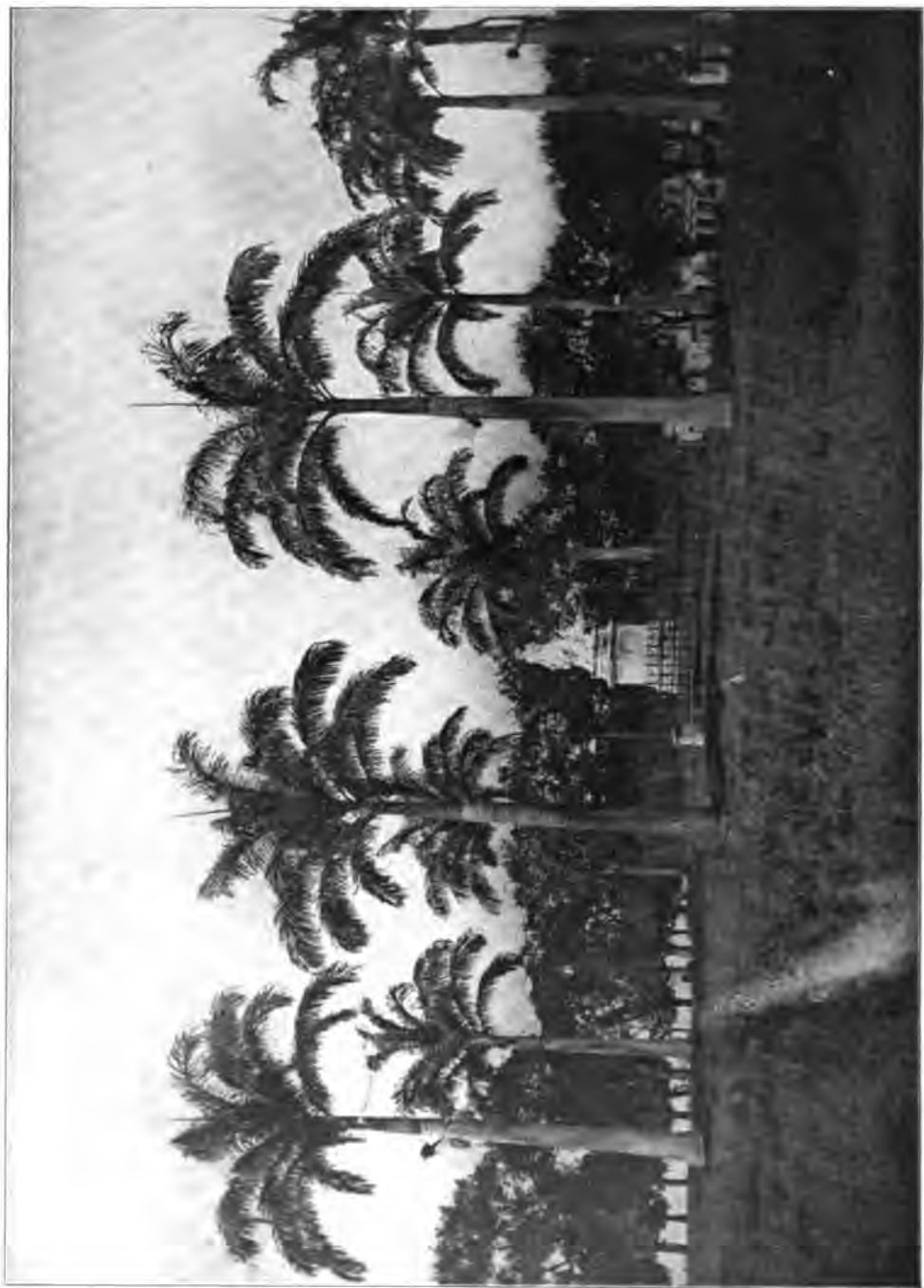
A correspondent of "Nature," July 22, 1886, writes of Mayon, then in eruption: "I tried the ascent, and climbed to about five thousand feet, when incandescent stones and ashes obliged me to come quickly down. I crossed a patch of forest half burned and covered with ashes. The sight was magnificent. I never saw any-



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WOMEN WHO COAL SHIPS AT ST. VINCENT.

The lives of many of these lower class women were blotted out in the recent eruption of Mont Garou Soufriere.



PARK, FORT DE FRANCE.

The above picture shows the statue of Josephine, wife of Napoleon and Empress of France. Josephine was born on an adjacent island.

thing like it as a sublime scene of devastation—ashes and stones and smoke everywhere, and fearful noise like heavy artillery all around.”

TAAL VOLCANO.

Taal volcano is in the island of the Bombon Lake referred to above. The journey by the ordinary route from the capital would be about sixty miles. This volcano has been in an active state from time immemorial, and many eruptions have taken place with more or less effect. The first one of historical importance appears to have occurred in 1641; again, in 1709, the crater vomited fire with a deafening noise; on the 21st of September, 1716, it threw out burning stones and lava over the whole island from which it rises, but so far no harm had befallen the villagers in its vicinity. In 1731, from the waters of the lake three tall columns of earth and sand arose in a few days, eventually subsiding into the form of an island about a mile in circumference. In 1749 there was a famous outburst, which dilacerated the coniform peak of the volcano, leaving the crater disclosed as it now is.

The last and most desolating of all the eruptions of importance occurred in the year 1754, when the stones, lava, ashes and waves of the lake, caused by volcanic action, contributed to the utter destruction of the towns of Taal, Tanauan, Sala and Lipa, and seriously damaged property in Balayan, fifteen miles away whilst cinders are said to have reached Manila, thirty-four miles distant in a straight line. One writer says in his MS., compiled thirty-six years after the occurrence, that people in Manila dined with lighted candles at mid-day and walked about the streets confounded and thunderstruck, clamoring for confession during the eight days that the calamity was visible. The author adds that the smell of the sulphur and fire lasted six months after the event, and was followed by malignant fever, to which half the inhabitants of the province fell victims. Moreover, adds the writer, the lake waters threw up dead alligators and fish, including sharks.

The best detailed account extant is that of the parish priest of Sala at the time of the event. He says that about 11 o'clock at night on the 11th of August, 1749, he saw a strong light on the top

of the Volcano Island, but did not take further notice. He went to sleep when, at 3 o'clock the next morning he heard a gradually increasing noise like artillery firing, which he supposed would proceed from the guns of the galleon expected in Manila from Mexico, saluting the Sanctuary of Our Lady of Cagsaysay whilst passing. He only became anxious when the number of shots he heard far exceeded the royal salute, for he had already counted a hundred times and still it continued. So he arose, and it occurred to him that there might be a naval engagement off the coast. He was soon undeceived, for four old natives suddenly called out, "Father, let us flee!" and on his inquiry they informed him that the island had burst, hence the noise. Daylight came and exposed to view an immense column of smoke gushing from the summit of the volcano, and here and there from its sides smaller streams rose like plumes. He was joyed at the spectacle, which interested him so profoundly that he did not heed the exhortations of the natives to escape from the grand but awful scene. It was a magnificent sight to watch mountains of sand hurled from the lake into the air in the form of erect pyramids and then falling again, like the stream from a fountain jet. Whilst contemplating this imposing phenomenon with tranquil delight a strong earthquake came and upset everything in the convent. Then he reflected that it might be time to go, pillars of sand ascended out of the water nearer to the shore of the town and remained erect until, by a second earthquake, they, with the trees on the islet, were violently thrown down and submerged in the lake. The earth opened out here and there as far as the shores of the Laguna de Bay, and the lands of Sala and Tanauan shifted. Streams found new beds and took other courses, whilst in several places trees were engulfed in the fissures made in the soil. Houses which one used to go up into one now had to go down into, but the natives continued to inhabit them without the least concern.

The volcano, on this occasion, was in activity for three weeks, the first three days ashes fell like rain. After this incident the natives extracted sulphur from the open crater, and continued to do so until the year 1754.

In that year (1754), the same chronicler continues, between 9 and 10 o'clock at night on the 15th of May, the volcano ejected boil-

ing lava, which ran down its sides in such quantities that only the waters of the lake saved the people on shore from being burned. Toward the north stones reached the shore and fell in a place called Bayoyongan, in the jurisdiction of Taal. Stones and fire incessantly came from the crater until the 2nd of June, when a volume of smoke arose which seemed to meet the skies. It was clearly seen from Bauan, which is on a low level about four leagues (fourteen miles) from the lake.

Matters continued so until the 10th of July, when there fell a heavy shower of mud as black as ink. The wind changed its direction, and a suburb of Sala, called Balili, was swamped with mud. This phenomenon was accompanied by a noise so great that the people of Batangas and Bauan, who that day had seen the galleon from Acapulco passing on her home voyage, conjectured that she had saluted the Sanctuary of Our Lady of Cagsaysay. The noise ceased, but fire still continued to issue from the crater until the 25th of September. Stones fell all that night, and the people of Taal had to abandon their homes, for the roofs were falling in with the weight upon them.

The night of All Saints' Day was a memorable one (Nov. 1st), for the quantity of falling fire stones, sand and ashes increased, gradually diminishing again toward the 15th of November. Then, on that night, after vespers, great noises were heard. A long melancholy sound dinned in one's ears, volumes of black smoke rose, an infinite number of stones fell, and great waves proceeded from the lake, beating the shores with appalling fury. This was followed by another great shower of stones, brought up amidst the black smoke, and lasted until 10 o'clock at night.

On the 29th of November, from 7 o'clock in the evening, the volcano threw up more fire than all put together in the preceding seven months. The burning column seemed to mingle with the clouds; the whole of the island was one ignited mass. A wind blew. And as the priests and the mayor (alcalde) were just remarking that the fire might reach the town, a mass of stones was thrown up with great violence; thunderclaps and subterranean noises were heard; everybody looked aghast, and nearly all knelt to pray. Then the waters of the lake began to encroach upon the houses, and the in-

habitants took to flight, the natives carrying away whatever chattels they could.

After the terrible night of the 29th of November they thought all was over, when again several columns of smoke appeared, and the priest went off to the Sanctuary of Cagsaysay, where the prior was. Taal was entirely abandoned, the natives having gone in all directions away from the lake. On the 29th and 30th of November there was complete darkness around the lake vicinity, and when light reappeared a layer of cinders about five inches thick was seen over the lands and houses, and it was still increasing. Total darkness returned, so that one could not distinguish another's face, and all were more horror-stricken than ever. In Cagsaysay the natives climbed on to the housetops and threw down the cinders, which were over-weighting the structures. On the 30th of November smoke and strange sounds came with greater fury than anything yet experienced, while lightning flashed in the dense obscurity. It seemed as if the end of the world was arriving. When light returned the destruction was horribly visible; the church roof was dangerously covered with ashes and earth, and the writer opines that its not having fallen in might be attributed to a miracle! Then there was a day of comparative quietude, followed by a hurricane which lasted two days.

The Governor-General sent food and clothing in a vessel, which was nearly wrecked by storms, whilst the crew pumped and bailed out continually to keep her afloat, until at length she broke up on the shoals at the mouth of the Pansipit River.

The road from Taal to Balayan was impassable for awhile on account of the quantity of lava. Taal, once so important, was now gone, and Batangas, on the coast, became the future capital of the province.

The actual duration of this last eruption was six months and seventeen days.

In 1780 the natives again extracted sulphur, but in 1790 a writer at the date says that he was unable to reach the crater owing to the depth of soft lava and ashes on the slopes.

CHAPTER XX.

DESTRUCTIVE ERUPTIONS OF ETNA—OLDEST ON RECORD.

The Eruptions of Mount Etna the Oldest Recorded of Any in the History of the World—The Poet Virgil Describes It—Ancients Believed a Living Giant Resided Under the Mountain—A Stone Fifty Feet in Diameter Thrown from Its Crater.

The eruptions of Mount Etna in Sicily are the oldest of which mankind has any exact record. The first eruption has been assigned to the year 1226 B. C., the second to the year 1170 B. C., and of the third in 1149 B. C. it is said that it drove the demigod Hercules from the island. These eruptions, however, belong in the realm of legend rather than in that of history. No doubt there were eruptions during that period preceding the dawn of history, when gods and demigods were supposed to be struggling for possession of the earth and air and sea. No doubt in Iceland also Hecla was furnishing the makers of sagos with materials out of which they built the fire-god Thor, but of these as of the eruptions of Etna there is no authentic record. The first volcanic eruption at all accurately located in time is that of Etna in the time of Pythagoras, 525 B. C., and even Pythagoras, though a definite historic figure, has about him a wide penumbra of legend. We have no details concerning that eruption. The next one occurred in 477 B. C., being the one mentioned by the Greek historian, Thucydides.

The conspicuous appearance of Mount Etna, the number and violence of its eruptions, the extent of its lava streams, its association with antiquity and its recorded history prolonged over more than twenty-four centuries have made it the most famous volcano either of ancient or modern times.

Perhaps the first description of a volcano now extant is that of the Greek lyric poet Pindar in his Pythian ode for Heiron, winner in the chariot race in B. C. 474. The poet believes that the monster Typhon is imprisoned in the mountain, and says:

“He is fast bound by a pillar of the sky, even by snowy Etna,

nursing the whole year through her dazzling snow. Whereat pure springs of unapproachable fire are vomited from the inmost depths; in the daytime lava streams pour forth a lurid rush of smoke; but in the darkness a red rolling flame sweepeth rocks with uproar to the wide, deep sea. * * * That dragon-thing (Typhon) it is that maketh issue from beneath the terrible, fiery flood." There had been an eruption of Mount Etna two years before in 476, and it filled the mind of the ancient world exactly as the eruption of Mount Pelee fills the mind of the world to-day.

In the third book of Thucydides (B. C. 471-402) he says: "In the first days of this spring the stream of fire issued from Etna, as on former occasions, and destroyed some land of the Catanians, who live upon Mount Etna, which is the largest mountain in Sicily. Fifty years, it is said, had elapsed since the last eruption, there having been three in all since the Hellenes have inhabited Sicily." The Latin poet Virgil has a passage on Etna which Conington thus translates:

"But Etna, with her voice of fear,
In weltering chaos thunders near.
Now pitchy clouds she belches forth
Of cinders red, and vapor swarth;
And from her caverns lifts on high
Live balls of flame that lick the sky:
Now with more dire convulsion flings
Disploded rocks, her heart's rent strings,
And lava torrents hurls to-day
A burning gulf of fiery spray."

Pindar really believed there was a live giant under Etna. With Virgil the image of "her heart's rent strings" is only a figure of speech—he knows better. The scientific Latin poet Lucretius not only knows better but does a highly original thing at that time and gives in his powerful verses an account of an eruption in which he reduces it to the working of natural law. "And now at last," he writes, "I will explain in what ways yon flame, roused to fury in a moment, blazes forth from the huge furnaces of Etna. First the nature of the whole mountain is hollow underneath, underpropped throughout with caverns of basalt rocks. Furthermore, in

all caves are winds and air, for wind is produced when the air has been stirred and put in motion. When this air has been thoroughly heated, and raging about, has imparted its heat to all the rocks around; wherever it comes in contact with them, and to the earth, and has struck out from them fire burning with swift flames, it rises up and then forces itself out on high, straight through the gorges; and so carries its heat far, and scatters far its ashes, and rolls on smoke of a thick, pitchy blackness, and flings out at the same time stones of prodigious weight—leaving no doubt that this is the stormy force of air. Again the sea to a great extent breaks its waves and sucks back its surf at the roots of the mountain. Caverns reach from this sea as far back as the deep gorges of the mountain below. Through these you must admit that air mixed up with water passes; and the nature of the case compels this air to enter in from that open sea, and pass within, and then go out in blasts and so lift up flame, and throw out stones, and raise clouds of sand; for on the summit are craters, as they name them in their own language, what we call gorges and mouths.”

It is but a step from this conception of Lucretius to the somewhat fuller knowledge of modern science. It is far nearer the truth than the old myth-maker got when from the hint of Etna with its one great crater he invented the giant Polyphamus with his one eye in the middle of his forehead. It is well though that we have both the science and the myth. Literature and art would be much poorer if Polyphemus had never been conceived.

Accounts of Etna were published by various scholars from 1541 to 1669, in which year the English ambassador to Constantinople forwarded to King Charles II. “a true and exact account of the late prodigious earthquake and eruption of Mount Etna or Monte Gibello.” Numerous accounts in the eighteenth and nineteenth centuries make this volcano the best studied of any that exist. This is of course due to the fact that the mountain has always been densely populated and consequently has been closely observed. With two cities, Catania and Aci Reale, and sixty-two towns and villages on Mount Etna it supports a population of more than 300,000 persons. Its area is four hundred and eighty square miles, but of these only about two hundred and eleven are habit-

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able and the population is consequently about 1,424 to the square mile. Down the sides of this densely populated and most fertile cone have flowed since 525 B. C. the fiery outpourings of seventy-eight recorded eruptions, nineteen of which were extremely violent, some of them doing terrific damage.

On the occasion of the eruption in 477 B. C. two heroic youths named Anapias and Amphinomus performed a deed to which Roman Seneca and other writers allude with enthusiasm. While the lava was overwhelming (not for the last time) the city of Katana, these two placed their aged parents on their shoulders and at the risk of their lives bore them through the flaming streets, and succeeded in placing them in safety. The story was decorated by the legend that the fiery streams of lava parted to let them through. Statues were raised in honor of these "Pious Brothers," and a temple was erected to commemorate the deed. A Latin poet concludes his poem on Etna with a description of this act, saying: "The flames blushed to touch the filial youths, and retired before their footsteps. On their right hand fierce dangers prevailed; on their left were burning fires. Athwart the flames they passed in triumph, his brother and he, each safe beneath his filial burden. The devouring flames fled backward and checked itself around the twin pair. At length they issued forth unharmed, and bore with them their deities in safety." We take the liberty of doubting that the fire of the lava was so gentlemanly and well disposed toward the two young fellows, but that doubt does not lessen our admiration for their pluck, and though the thing happened twenty-three hundred and seventy-nine years ago we are glad they saved the old people.

An important eruption of Etna occurred in 396 B. C. The lava broke out from the most northerly of the volcano's smaller cones, followed the course of the river Acesines, entered the sea at the site of the Greek colony of Naxos and compelled Himileo, the Carthaginian general, who was attempting to get from Messana to Syracuse, to march his troops around the west side of the mountain. After this no eruption is recorded for two and a half centuries, and then in 140 B. C. the mountain destroyed forty people.

Some philosopher should study out the connection between fish and a lack of veracity. It is said that in 126 B. C. Etna poured such a mass of molten matter into the Ionian Sea that the water near the island of Lipari boiled and that the inhabitants ate so large a number of the cooked fish thrown upon the shore that a distemper appeared and destroyed a large number of people. If we have been rendered unduly skeptical and this fish-story is a fact, it is certainly a most curious form of the destructive effects of volcanoes.

Four years after the fish a new eruption nearly destroyed the city of Katana, the roofs being broken in by the weight of hot ashes. The lava streams luckily turned aside from the city, but the damage was such that the Romans granted the inhabitants an immunity of all taxes for a space of ten years. It is the earliest recorded relief measure for earthquake sufferers.

TENTH ERUPTION OF ETNA.

The tenth eruption and earthquake took place shortly before the death of Cæsar, and after the fact it was considered a portent of the event. Five small eruptions took place between this time and 72 A. D. and then for near two centuries Etna slept. In 252 A. D. a violent eruption lasted nine days. The lava flowed in the direction of Catania, as the ancient city had come to be called, and for the first time the inhabitants employed the veil of St. Agatha as a charm to stay the torrents of lava rushing down upon them. St. Agatha had been martyred the year before. When the terrified people of Catania saw the stream of lava approaching the city they rushed to the tomb, removed the veil which covered the saint's body, carried it to the edge of the descending river of fire, and there its waves were stayed.

After an eruption in 420 there was during seven and a half centuries only one recorded eruption of Mount Etna. In 1169, however, as though it had been gathering strength through all those centuries, the mountain broke forth in an eruption accompanied by a violent earthquake. In spite of the veil of St. Agatha, whose vigil it was that day, fifteen thousand people of Catania were al-

most instantly buried beneath the ruins of their homes. The cathedral of Catania was crowded with people honoring their protecting saint and these, together with their Bishop and forty-four Benedictine monks, were buried beneath the ruins of the church. The side of the cone of one of the great craters of Etna fell into the crater. At Messina the sea, as afterwards at Lisbon and at Krakatoa, retired to some distance from the shore, and then suddenly returned, overwhelming a portion of the city, and sweeping away a number of persons who had fled to the shore for safety. The clear and pure fountain of Arethusa at Syracuse became blackish, while the fountain of Ajo ceased to flow for two hours and then emitted water of the color of blood. Vines, corn and trees were burnt up over large districts.

ETNA'S GREATEST ERUPTION.

In the five hundred years between 1169 and 1669, twenty-two eruptions of Etna were recorded, many of them disastrous, but of the eruption of 1669 we have a more detailed account than of any that came before; and it was in every respect one of the most terrible on record. On the 8th of March the sun was obscured and a whirlwind blew over the face of the mountain; at the same time earthquakes commenced, and continued to increase in violence for three days, when Nicolosi was converted into a heap of ruins. On the morning of the 11th, a fissure nearly twelve miles in length opened in the side of the mountain. This fissure was only six feet wide, but of unknown depth and a bright light came from it. In line with it opened six mouths emitting vast columns of smoke, and roarings audible forty miles away. Toward the close of the day a crater opened about a mile below the others, ejecting redhot stones and covering the country for sixty miles with sand and ashes.

From this new crater poured a torrent of lava two miles wide, which encircled one town, and then destroyed Belpasso, a town of eight thousand inhabitants. Seven new mouths opened around the new crater, united with it, and continuing to pour forth lava the torrent destroyed the town of Mascalucia on March 23d. The crater cast up great quantities of reddish matter, forming the

double-coned hill now called Monti Rossi. Two days later violent earthquakes shook the great central cone of the mountain down into its crater. The original current of lava had divided into three streams, one of which destroyed S. Pietro, the second Camporotondo, and the third the lands about Mascalucia, and then the village of Misterbianco. Fourteen villages were so destroyed and the lava was on its way to Catania itself. Two miles from the city it undermined a hill covered with cornfields, and bore it forward. A vineyard was also seen floating on its fiery surface. It reached the sixty-foot walls of Catania, accumulated, rose higher and higher, poured over in a cascade of heavy liquid fire, and overwhelmed part of the city. Another part of the stream threw down 120 feet of the wall and flowed in. On April 23d the lava reached the sea, which it entered as a stream 600 yards broad and 40 feet deep. The water began to boil violently and clouds of steam rose carrying particles of scorix. Near the end of April the stream west of Catania which had seemed to be hardened, burst forth again, flowed into the Benedictine monastery and then branched off into the city. Attempts were made to build walls to stop it.

Previous to this time the Senate, accompanied by the Bishop and clergy, had gone in procession out of the city to Monte di S. Sofia with all their relics, including St. Agatha's veil. They erected an altar, celebrated mass, "and used the exorcisms accustomed upon such extraordinary occasions, all which time the mountain ceased not as before with excessive roaring to throw up its smoke and flames with extraordinary violence and abundance of great stones which were carried through the air." The inhabitants watching the advance of the lava rushed into the churches to invoke the aid of the Madonna and the Saints. One Baron Papalardo, however, relying more upon his own efforts than upon supernatural assistance, set out with a party of fifty men, dressed in skins to protect them from the intense heat, and by means of iron crows and hooks broke open one of the solid walls of scorix that flanked the liquid current so as to divert it from the menaced city. A passage was thus opened for a rivulet of melted matter, which flowed in the direction of Paterno. The inhabitants of that town,

alarmed for their own safety, took up arms and forced Báron Papalardo and his men to desist.

The lava did not altogether stop for four months, and two years afterwards it was found to be red-hot beneath the surface. Eight years afterwards steam escaped from this lava after rain. One stone having a diameter of fifty feet was thrown a mile in this eruption and sank twenty-three feet in the earth.

DESCRIBED BY AN EYE WITNESS.

The English ambassador to Constantinople who saw the eruption writes: "I could discern the river of fire to descend the mountain, of a terrible fiery or red color, and stones of a paler red to swim thereon, and to be as big as an ordinary table. * * * Of twenty thousand persons which inhabited Catania, three thousand did only remain; all their goods are carried away, the cannon of brass are removed out of the castle, some great bells taken down, the city gates walled up next the fire, and preparation made by all to abandon the city."

Four eruptions took place between this terrible one of 1669 and that of January, 1693, when clouds of black smoke were poured from the great crater, and loud noises resembling the discharge of artillery were heard. A violent earthquake succeeded and Catania was shaken to the ground, burying 18,000 of its inhabitants in the ruins. It is said that in all fifty towns were destroyed in Sicily, together with from 60,000 to 100,000 inhabitants. Lava was emitted from the crater which was lowered by the eruption. Being far more widespread in their action earthquakes destroy a far greater number of people than volcanoes, but the very localization of the destruction in the case of the latter increases its horror.

Seven eruptions of Etna are recorded between 1693 and 1755, the year of the gigantic earthquake which was felt more or less violently over a region four thousand by five thousand miles in extent, and which brought to Lisbon the most terrible of all the catastrophes which the earth has inflicted upon its dwellers. It would have been singular, with the commotion there was in that year in the depths of the earth, had Etna remained quiet. Early in the year the volcano showed signs of disturbance; a great column of

black smoke issued from the crater, from which forked lightning was frequently emitted. Loud detonations were heard and two streams of lava issued from the crater. A new mouth opened four miles from the summit and a quantity of lava was ejected from it. An extraordinary flood of water descended from the Val del Bové, carrying all before it and strewing its path with huge blocks.

The volume of water was estimated at 16,000,000 cubic feet, a greater amount than could be furnished by the melting of all the winter's snow on the mountain. It formed a channel two miles broad, and in some places thirty-four feet deep and it flowed at the rate of a mile in a minute and a half during the first twelve miles of its course. Lyell considers the flood was probably produced by the melting not only of the winter's snow, but also of older layers of ice, which were suddenly melted by the permeation of hot steam and lava, and which had been previously preserved from melting by a deposit of sand and ashes, as in the case of the ancient glacier found near the summit of the mountain in 1828. In November, 1758, a smart shock of earthquake caused the cone of the great crater to fall in, but no eruption occurred at the time.

Two not very noteworthy eruptions occurred in 1759 and 1763, and three years later Recupero, one of the historians of Etna, had a narrow escape while watching an eruption. This incident shows the peculiar action of flowing lava. The historian had ascended a small hill fifty feet high, of ancient volcanic matter, in order to watch the approach of the lava stream which was slowly advancing with a front of two and a half miles. Suddenly two small streams detached themselves from the main stream and ran rapidly toward the hill. Recupero and his guide at once hastened to descend, and had barely escaped when they saw the hill surrounded by lava. In a few minutes it was melted down and sank into the molten mass. The country of Montemozzo was devastated by an eruption in 1780.

At the commencement of the great Calabrian earthquake of 1787 Mount Etna ejected large quantities of smoke, but was otherwise quiescent. Twelve years afterwards a fresh outburst occurred, earthquakes were prevalent, and vast volumes of smoke bore to seaward, and seemed to bridge the sea between Sicily and Africa. A torrent of lava flowed toward Aderno, and a second flowed into

the Val del Bove as far as Zoccolaro. A pit called *La Cisterna*, 40 feet in diameter, opened in the *Piano del Lago*, near the great cone, and ejected smoke and masses of old lava saturated with water. Several mouths opened below the crater, and the country round about Zaffarana was desolated. Theabote Ferrara, author of a description of Etna, saw this eruption. "I shall never forget," writes he, "that this last mouth opened precisely upon the spot where, the day before, I had made my meal with a shepherd. On my return next day he related how, after a stunning explosion, the rocks on which we had sat together were blown into the air, and a mouth opened, discharging a flood of fire, which, rushing down with the rapidity of water, hardly gave him time to make his escape." It is hard for a resident of a non-volcanic country to realize the indifference with which the inhabitants regard the risk of being overwhelmed by an eruption of lava. We can best understand it by comparing it with our own comparative indifference to the frequent disastrous railroad accidents of American railroads.

FOURTEEN ERUPTIONS IN FIFTY-SIX YEARS.

Fourteen eruptions of varying violence but no specially distinguishing features occurred between this time and 1843, when fifteen mouths of fire opened near the crater of 1832 at the great height of 7,000 feet above the sea. They began by discharging scoriæ and sand, and afterwards lava, which divided into three streams, the two outer ones soon came to a standstill while the central stream continued to flow at the rapid rate of 180 feet a minute, the descent being at an angle of 25 degrees. The heat at a distance of 120 feet from the current was 90° F. A new crater opened just above Bronte and discharged lava which threatened that town, but fortunately it encountered Monte Vittoria and was diverted into another course. While a number of the inhabitants of Bronte were watching the progress of the lava, the front of the stream was suddenly blown out as by an explosion of gunpowder; in an instant red-hot masses were thrown in every direction, and a cloud of vapor enveloped everything. Thirty-six persons were

killed on the spot and twenty more survived but a few hours. The great crater emitted dense volumes of smoke and loud bellowings, also quantities of volcanic dust saturated with hydrochloric acid which destroyed the vegetation wherever it fell.

ERUPTION IN MODERN TIMES.

The grandest eruption of Etna recorded in modern times began on the 21st of August, 1852. It was first seen by a party of six English tourists who were ascending the mountain from Nicolosi in order to see the sunrise from the summit. As they approached the Casa Inglesi the crater commenced to give forth ashes and what appeared to be flames. In a narrow defile the party were met by a violent hurricane which overthrew both the mules and their riders, and urged them toward the precipices of the Val del Bove. They sheltered themselves beneath some masses of lava, when suddenly an earthquake shook the mountain. Their mules were stampeded, and they returned on foot toward daylight to Nicolosi, lucky to have escaped without injury. In the course of the night many mouths of fire opened in part of the Val del Bove, a great fissure opened at the base of one of the cones, and a crater was thrown up from which for several days showers of sand and scoriæ were ejected. Next day lava flowed down the Val del Bove and two streams branched out. Afterwards it flowed towards Zaffarana and devastated a large tract of woody region.

Four days later a second crater was formed, from which lava was emitted together with sand and scoriæ, which caused cones to rise around the craters. The lava moved slowly and toward the end of August it came to a stand, only a quarter of a mile from Zaffarana. Mount Finocchio in the Val del Bove was ascended by the scientist Gemellario, who says the hill was violently agitated like a ship at sea. The surface of the Val del Bove or Valley of the Bull appeared like a molten lake; scoriæ were thrown up from the craters to a great height, and loud explosions were heard at frequent intervals. The eruption continued to increase in violence and two weeks after its beginning two new mouths opened emitting lava which flowed toward the Valley of Calanna, and fell over the Salto della Giumenta, a precipice nearly 200 feet deep.

The noise of this Niagara of fire was like that of great clashing masses of metal. The eruption continued through all the early months of 1853, and though it gradually abated in violence it did not finally cease until May 27th, more than nine months after it began. The entire mass of lava ejected is estimated to be equal to an area six miles long by two miles broad with an average depth of twelve feet. One stream of lava which took the direction of Milo, reinforced by a new current, destroyed the hamlet of Caselle del Milo, and then divided into two branches which left the village of Caselle in safety between them. The inhabitants of La Macchia and Giarre gave themselves up for lost; for it seemed that the lava would be obliged to follow a valley that led it directly upon them. Happily, however, it ceased on the 20th of September to advance perceptibly.

The crater of this eruption of 1852 was called the Centenario from its having been formed at the time of the centenary of the feast of St. Agatha. Santiago in Cuba was destroyed by an earthquake on the day of this eruption. During its whole period of nine months only one explosion proceeded from the main crater of Etna, which, at that time, however, cast an enormous quantity of ashes and scorïæ into the air. A singular phenomenon of this eruption was the appearance one day of ashes so white that at a distance they appeared like snow. Squeezed together by the hand they assumed the consistency of clay, but hardened in fire and could then be reduced to powder. They were thought to be the debris of felspathic rocks, disintegrated by the heat of the lava and blown out by the expansive power of disengaged gas. Two billion cubic feet of red-hot lava were spread over three square miles in this eruption.

LAST ERUPTION OF ETNA.

The last eruption of Etna, the seventy-eighth recorded of it, occurred in August, 1874, when the people of the towns on the north, west and east sides of the mountain were awakened by loud subterranean rumblings. Soon afterwards a formidable column of black smoke issued from the crater, accompanied by sand, scorïæ

and ignited matter. Severe shocks of earthquake were felt, the center of impulsion being apparently situated on the northern flank of the mountain, at a height of 2,450 meters above the level of the sea. Some small eruptive mouths opened near the great crater, and ejected lava, but the quantity was comparatively small, and but little damage was done. The center of disturbance was at an elevation of 7,600 feet above the sea on the north side of the crater. There a new crater was formed, having an elliptical contour and a diameter of about a hundred yards. It is composed of prehistoric gray labradorite and doleritic lava. Downwards from the main crater a long fissure extended for 400 meters, and along the line of this fissure no less than thirty-five minor cones opened with craters from three to thirty yards in diameter. The stream of lava ejected from these mouthlets was four hundred yards long, eighty wide and two thick, and the bulk of the volcanic material brought to the surface, including the principal cone and its thirty-five subordinates, and their discharge was calculated to amount to 1,351,000 cubic meters.

EARTHQUAKES PRESAGE OUTBURSTS.

It will be seen from the account of the foregoing eruptions that there is a great similarity in the character of the eruptions of Etna. Earthquakes presage the outburst; loud explosions follow, rifts and mouths of fire open in the sides of the mountain; smoke, sand, ashes and scorix are discharged, the action localizes itself in one or more craters, cinders are thrown up and accumulate around the crater and cone, ultimately lava rises, and frequently breaks down one side of the cone where the resistance is least. Then the eruption is over. The symptoms which precede an eruption are generally irregular clouds of smoke, ferilli, or volcanic lightnings, hollow intonations, and local earthquakes, which often alarm the surrounding country as far as Messina, and have given the whole province the name of Demon Valley, as being the abode of infernal spirits. These agitations increase until the vast caldron becomes surcharged with the fused minerals, when, if the convulsion is not sufficiently powerful to force them from the great crater (which,

from its great altitude and the weight of the glowing matter, requires an uncommon effort, they explode through that part of the side which offers the least resistance with a grand and terrific effect, throwing red-hot stones and flakes of fire to an incredible height, and spreading ignited cinders and ashes in every direction.

After the eruption of ashes, lava frequently follows, sometimes rising to the top of the cone of cinders, at others breaching it on the least resisting side. When the lava has reached the base of the cone it begins to flow down the mountain, and being then in a very fluid state, it moves with great velocity. As it cools the sides and surface begin to harden, its velocity decreases, and in the course of a few days it only moves a few yards in an hour. The internal portions, however, part slowly with their heat, and months after the eruption clouds of steam arise from the black and externally cold lava beds after rain, which, having penetrated through the cracks, has found its way to the heated mass within.

The ordinary lava flow from Mount Etna is seen therefore to be so slow as to be harmless, compared with the awful rush of fire which came so suddenly down the steep incline of Mount Pelee.

CHAPTER XXI.

EARTHQUAKES, THEIR CAUSE AND FREQUENCY.

Earthquakes the Most Destructive Agent of Nature—Narratives of Calamities of a By-gone Century—Frequent Occurrence of Earthquakes—Scientific Theory of Earthquakes.

Of all the destructive agencies of nature there is none to equal the earthquake. The hurricane is comparatively weak in its fury; the volcanic eruption generally confines its ravage to its own neighborhood, but an earthquake may cover a whole land with ruins. The bare mention of the loss of life in a given earthquake conveys but a faint idea of the extent of human misery inflicted by it. We must picture to ourselves the slow, lingering death which is the fate of many a one buried or burnt in the fire which almost invariably bursts out in a city where hundreds of dwellings have suddenly been shaken down—the numbers who escaped with loss of limb or serious bodily injuries and the surviving multitude suddenly reduced to poverty and need.

In the Calabrian earthquake of 1783 it is supposed that about a fourth part of the inhabitants of Polistena and other towns were buried alive, and might have been saved had there been hands to do it. In so general a calamity, where each was occupied with his own misfortunes or those of his family, help could seldom be had. "It frequently happened," says Sir Charles Lyell, "that persons in search of those most dear to them could hear their moans, recognize their voices, were certain of the exact spot where they lay buried beneath their feet, yet could afford them no succor. The piled mass resisted all their strength and rendered their efforts of no avail. At Terranova four Augustin monks who had taken refuge in a vaulted sacristy, the arch of which continued to support a vast mass of ruins, made their cries heard for the space of three days. One only of the brethren of the whole convent was saved, and of

what avail was his strength to remove the enormous mass which had overwhelmed his companions? He heard their voices die away gradually, and when afterwards their four corpses were disinterred, they were found clasped in each other's arms.

AFFECTING SCENES.

Affecting narratives are preserved of mothers saved after the fifth, sixth and even seventh day of their interment, when their infants had perished with hunger. In his work on the great Neapolitan earthquake of 1857, Mr. Mallet, from innumerable narratives of personal peril and sad adventure, selects the distressing case of a noble family of Monte Murro as affording a vivid picture of the terrors of an earthquake night. Don Andrea del Fino, the owner of one of the few houses which had escaped destruction, was with his wife in bed, his daughter sleeping in an adjacent chamber on the principal floor. At the first shock his wife, who was awake, leaped from bed and, immediately after, a mass of the vaulting above came down and buried her sleeping husband. At the same moment the vault above their daughter's room fell in upon her. From the light and hollow construction of the vaults neither was at once killed. The signora escaped by leaping from the front window—how she scarcely knew. For more than two hours she wandered, unnoticed among the mass of terrified survivors in the streets, before she could obtain aid from her own tenants and dependants to extricate her husband. They got him out after more than eighteen hours entombment—alive indeed, but maimed and lame for life. His daughter was dead. As he lay longing despairingly for release from the rubbish, which a second shock, an hour after the first, had so shaken and closed in upon him that he could scarcely breathe, he heard, but a few feet off, her agonizing cries and groans grow fainter and fainter, until at last they died away.

MEN MORE MERCILESS THAN NATURE.

Too often in earthquakes and other great natural catastrophies men themselves show themselves more merciless than the blind forces of nature. The arm of the law being paralyzed by the gen-

eral panic, thieves and ruffians quickly seize the opportunity. In 1783 nothing could be more atrocious than the conduct of the peasants who flocked into the towns, not to rescue their fellow beings from lingering death, but to plunder the dying and the bodies of the dead. They dashed through the streets amid tottering walls and clouds of dust, trampling beneath their feet the bodies of the wounded and half buried, and often stripping them while yet living of their clothes. These were even lower than were that boatload of plunderers picked up near St. Pierre with rings from the charred bodies in their pockets.

Darwin says that earthquakes alone are sufficient to destroy the prosperity of any country. "If beneath England," says he, "the now inert subterranean forces should exert those powers which most assuredly in former geological ages they have exerted, how completely would the entire condition of the land be changed! What would become of the lofty houses, thickly-packed cities, great manufactories, the beautiful public and private edifices? If the new period of disturbance were first to commence by some great earthquake in the dead of night how terrific would be the carnage! England would at once be bankrupt; all papers, records and accounts would from that moment be lost. Government, being unable to collect the taxes, and failing to maintain its authority, the hand of violence and rapine would remain uncontrolled. In every large town famine would go forth, pestilence and death following in its train. Dwellers in all great cities, New York, Chicago, Boston, Philadelphia, San Francisco, particularly all sea and lake ports, may likewise give themselves a shiver of horror at the thought of their so solid cities falling in upon them, but fortunately the experience of several ages shows that the regions subject to these terrible catastrophes are confined to a comparatively small part of the surface of the globe. Southern Italy and Sicily, homes of Vesuvius and Etna, the Azores, Portugal and Morocco; Asia Minor, Syria and the Caucasus; the Arabian shore of the Red Sea; the East Indian archipelago; the West Indies, Quito, Peru, Chili and—mark it, ye builders of canals!—Nicaragua are particularly liable to destructive shocks.

ONE EARTHQUAKE EACH YEAR.

It is estimated that twelve or thirteen earthquakes, destructive of life and property, occur every year. The surface of the globe is never free from sensible evidence of the continued operation of earthquake agency. In one quarter or another tremors or slight shakings are always taking place. When these are of a serious nature, whole cities have been destroyed, fertile districts with all their fruit and grain have been laid waste; and enormous masses of human beings have lost their lives. Fifty or sixty thousand perished in the great Lisbon earthquake, while in the Calabrian earthquake of which we have given a few human episodes, forty thousand people lost their lives. It is estimated that thirteen millions of the human race have met their deaths in earthquakes—a population greater than that of the Republic of Mexico!

The changes which earthquakes produce on the surface of the earth disclose to the geologist an agency which seems to have been at work during every period of the world's history, and which has altered the surface of the continents to an extent that can hardly be imagined. They form new lakes and river courses, obliterate old ones, hollow out new valleys, form fissures of all sizes, and cause immense landslides.

EGYPT MOST SOLID OF THE EARTH'S SURFACE.

Egypt seems to be the most solid portion of the earth's surface, but even there is record of an earthquake in 1740 A. D., and Holland with its loose alluvial deposits has also felt their power. The bed of the ocean is not exempt from earthquakes, and vessels at sea have passed over the region where they were taking place. Such a subaqueous or underwater earthquake is described by Kipling in the yarn called "A Matter of Fact," and one year before the eruption of Mount Pelee, a ship captain reported such an earthquake in the sea thirty miles south of Martinique. The shock gave the men in the vessel a sensation as though the ship had struck on a reef.

WHERE EARTHQUAKES ARE MOST FREQUENT.

The localities where earthquakes are likely to occur are so well defined that their limits may be exhibited on a map. They are most frequent around the present lines or centers of volcanic action, and their frequency and violence seem to bear some relation to the activity and intensity of the associated volcanoes. Observers of volcanic phenomena have noticed that every great eruption, in whatever part of the world and whether from a vent on land or beneath the sea, is accompanied by earthquake shocks of greater or less violence and duration. On the other hand those observing earthquakes find them accompanied by volcanic eruptions. The opening of a volcano's vent often coincides with the closing of the earthquake as though the relief of pressure was sufficient to stop it. But though regions of active volcanic action are those of most frequent earthquake action, the earthquakes of such regions are not the most violent.

It is said popularly that preceding an earthquake are various characteristic appearances in the sky or changes of atmosphere, sudden gusts of wind interrupted by sudden calms, irregularities in the season before or after the shock, violent rains at unusual seasons or in countries where rain is almost unknown, a reddening of the sun's disk, a haziness in the air often continuing for months and similar phenomena. All these things are so irregular in their appearance, however, and have so seldom been observed in connection with more than one earthquake that they probably have no real connection. The underground noises which precede, accompany or succeed the moment of shock are, on the contrary, intimately connected with the quaking. They do not always occur, though, even in earthquakes of the greatest violence. These subterranean sounds have been likened to chains pulled about, increasing to the loudness of thunder, and to the rumbling of carriages, growing gradually louder till it equals the loudest artillery, or they are like the hissing of masses of red-hot iron plunged in water. Sometimes sounds similar to these occur beneath the surface of the earth and are not followed by a shock.

The phenomena of earthquakes themselves are more uniform,

Sometimes there is merely a gentle motion of the surface, which produces no injury. In severe earthquakes the almost invariable order of events is first a trembling, then a severe shock, or series of shocks, and finally a trembling, gradually becoming insensible. This progressive movement is produced by an earth wave, or true undulation of the solid crust of the earth. The whole mass of the area is not moved at once. A wave moves through the earth as a wave moves through the sea, and it is when the crest of a wave reaches a given point that that point feels the shock. In the case of the Lisbon earthquake the progress of the wave was roughly calculated, and shown to have very great velocity, lasting at any one spot for one brief though terrible instant. One account of the Lisbon earthquake states that the shock was felt as far as the St. Lawrence in Canada on one side; on the other as far as the southern shores of Finland, and even in some of the West Indies—an area of seven and a half million square miles. This writer calculates that if the earth's crust were twenty miles thick then a hundred and fifty million cubic miles of solid matter was moved. Other authorities do not estimate the affected area to be so large.

TIDAL WAVE.

One readily sees how an earthquake wave sweeping through the earth must stir the sea when it passes into it. In front of the advancing wave of earth, whether it come from landward to the sea or along the sea bottom to the land, there must be a trough. When the bottom sinks the sea is drawn back from the shore, the wave of earth rising forces the water back still further, and then with reaction the water slides down the rear slope of the earth wave, creating the giant wave of water, which is so terribly destructive when it hurls itself and the ship it bears over the shore. In 1755, the time of the Lisbon earthquake, the tidal wave from the sea was fifty feet high at Cadiz, carrying all manner of sea things far up upon the land.

CONNECTION BETWEEN EARTHQUAKES AND VOLCANOES.

Although the present scientific theory of earthquakes is not yet satisfactory to scientists, they are agreed as to the connection be-

tween volcanoes and earthquakes, and know that they are produced by the same subterranean agency. The existence of molten matter in the interior of the earth is the starting point in all except the chemical theory, propounded by Dany when first he discovered the metallic bases of the earths and alkalies. It occurred to him that those metals might abound in an unoxidized state in the subterranean regions to which water must occasionally penetrate. If this occurred gaseous matter would be set free, the metals would combine with the oxygen of the water, heat enough would be evolved to melt the surrounding rocks, the pressure of the gas would account for the earthquakes, and the lava of volcanoes would be explained. The theory found supporters, but even its author abandoned it because of the improbability of the existence of uncombined metallic bases beneath the earth. They normally combine with oxygen. What force then uncombined them?

Mr. Mallet, assuming that volcanoes and the centers of earthquake disturbances are always near the sea or other large supplies of water, says that when an eruption of igneous matter takes place beneath the sea bottom the first action must be to open up large fissures in its rocky materials, or to lift and remove its incoherent portions, such as sand, gravel and mud. The water on meeting the heated surfaces assumes the spheroidal state; while in this condition the internal motion may be great but little steam is generated; but no sooner have the surfaces cooled than the water comes in close contact with them, and a vast volume of steam is explosively evolved, blown off into the deep, cold water of the sea, condensed, and so gives a tremendous blow to the volcanic focus, and, being transferred outwardly in all directions, is transmitted as an earthquake shock. When the surfaces of the ignited material cool down below the point at which steam can be rapidly generated, they cause merely a gentle boiling, which is transmitted as trembling after the shock. On the surfaces again becoming heated by conduction from the molten mass, these various phases are again repeated. This Mr. Mallet considers the chief cause of earthquakes, the evolution of steam through fissures and its irregular condensation under pressure of sea water, or great fractures and dislocations in the rocky crust, suddenly produced by pres-

sure acting on it from beneath or any other direction. The flaw in the theory needs no scientific training to discover. It explodes of itself when one asks the question, What caused the original fissure? The theory does not go back far enough in the chain of cause and effect. Another theory assumes that the earth cannot be merely a molten fluid core with a hardened rind floating upon it, for it has rigidity. But molten rock under such immense pressure as there is in the depths of the planet may have the rigidity of a solid and yet be fluid. Even though mainly solid it must still be full of areas of molten rock between which and the surface volcanoes are orifices, tubes, chimneys of communication. Into such cavities water sinking down through crevices from the ocean or the land must be constantly finding its way; and the steam thus generated exerts such enormous pressure as to force the molten matter to the surface, itself mingling and escaping along with it.

When a mass of water is suddenly precipitated into a hot cavern the explosion of steam will cause an earthquake concussion which, when there is no volcanic vent, may be sufficient to rend the strata above it and form a new one. Some such pressure from below there certainly is, and steam does undoubtedly rush and push and explode its way up volcanic shafts. For our part, we are pleased with the image of a hollow rubber ball filled with water and with surface covered with tiny punctures. Let the rubber surface contract as the crust of the earth contracts in cooling, and the water will spurt out. The analogy is not perfect, for the fiery fluid of the earth melts and burns its own way out, but to us the mechanical force which starts it out is sufficiently illustrated by the small boy and his rubber ball.

The following chapter contains a list of the great earthquakes from the earliest times.

CHAPTER XXII.

DISASTROUS EARTHQUAKES OF HISTORY.

Record of Earthquakes from 464 B. C. to the Present Time—Earthquake in Ancient Sparta Which Had an Important Political Bearing—Gibbon's Description of an Earthquake—Fifty Thousand Slain at Lisbon.

Earthquake in Sparta left only five houses in the city, B. C. 464.

One which made Euboea, in Greece, an island, 425.

Helice and Bura, in Peloponnesus, swallowed up, 373.

Duras, in Greece, and twelve cities in Campania buried, 345.

Lysimachia buried, about 283.

Ephesus overturned, A. D. 17.

One accompanying the eruption of Vesuvius which buried Pompeii, 79.

Great earthquakes in 105, 115, 126, 157, 358.

At Constantinople; edifices destroyed, thousands perished, 557.

In Africa many cities destroyed, 560.

Awful one in Syria, Palestine and Asia, more than 500 towns destroyed, with immense loss of life, 742.

Constantinople overturned; all Greece shaken, 936.

England, 1089; Antioch, 1114.

Catania, in Sicily, overturned; 15,000 persons buried, 1137.

Lincoln, England, 1142.

Syria, 20,000 perished, 1158.

Calabria, a city, with its inhabitants, overwhelmed by the Adriatic Sea, September, 1186.

In Cicilia, 60,000 perished, 1268.

Greatest known in England, 14 November, 1318.

At Naples, 40,000 perished, 5 December, 1456.

Constantinople, thousands perished, 14 September, 1509.

At Lisbon, 30,000 lost, 26 February, 1531.

Naples, thirty villages ruined, 70,000 lives lost, 30 July, 1626.

Schamaki, 80,000 perished, 1667.

Port Royal, Jamaica, West Indies, 3,000 perished, June 7, 1692.

Sicily, fifty-four cities, 300 villages, 100,000 lives lost. Of Catania, with 18,000 inhabitants. not a trace remained, September, 1693.

Jeddo, Japan, ruined; 200,000 perished, 1703.

Pekin, 100,000 swallowed up, 1731.

At Grand Cairo half the houses and 40,000 people lost, 1754.

Kaschan, North Persia, 40,000 perished, June 7th, 1755.

The great earthquake at Lisbon, 50,000 lost, November 1st, 1755.

At Martinique, 1,600 persons perished, August, 1767.

Vesuvius overwhelmed city of Torre del Greco, June, 1794.

Santa Fe and Panama, 40,000 lost, 4 February, 1797.

New Madrid, in lower Mississippi, 1811.

Caraccas, 12 March, 1812.

Aleppo destroyed, 20,000 perished, August and 5 September, 1822.

At Martinique nearly half of Port Royal destroyed; 700 persons killed and the whole island damaged, 11 January, 1839.

Manila much injured, 16-30 September, 1852.

In seventy-five years, from 1783 to 1857, the Kingdom of Naples lost 111,000 persons by earthquakes!

Java and Sumatra desolated by eruption of Krakatoa, August, 1883.

Slight shocks in United States, from Washington to New York, August 10, 11, 1884.

Charleston, S. C., 41 lives lost, August 31, 1886.

THE EARTHQUAKE IN ANCIENT SPARTA.

The earthquake which shook the Peloponnesus of Greece in 464 B. C. was important in its political bearing, being in this respect similar to one twenty-two hundred and seventy-six years later in far-away South America. This Grecian earthquake opened great chasms in the ground and rolled down huge masses from the highest peaks of Taygetus. Sparta itself became a heap of ruins, in which not more than five houses are said to have been left standing. More than 20,000 persons were believed to have been destroyed by the shock, and the flower of the Spartan youth

was overwhelmed by the fall of those buildings in which they were exercising and developing themselves into physical perfection. The Helots of Sparta, especially those descended from the enslaved Messenians, took advantage of the confusion produced by the earthquake to rise in revolt. Having secured possession of Ithome, they fortified themselves in the town and withstood there a siege of ten years. The Spartans invited the Athenians to aid them in the siege, but soon grew jealous of their allies, dismissed them with some rudeness, and thereby sowed the seed of the all-important Peloponnesian war.

It is significant, however, that the clear-minded Spartans did not, like the Venezuelans of a supposedly more enlightened period, allow their priests to distort the great natural calamity into a supernatural terror.

EARTHQUAKES AT ANTIOCH.

Early in the year 115 A. D. Antioch, the splendid capital of Syria, was visited by an earthquake, one of the most disastrous apparently of all the similar inflictions from which that luckless city has periodically suffered. The calamity was enhanced by the presence of unusual crowds from all the cities of the East, assembled to pay homage to the Emperor Trajan, or to take part in his expedition of conquest to the East. Among the victims were many Romans of distinction. Trajan himself only escaped by creeping through a window, for the shaken earth is no respecter of persons, and as readily engulfs the master of the world of men as it does the meanest slave.

Again in 526, during the reign of Justinian, Antioch was the chief sufferer in the earthquakes which then, more than at any other period of history, were overwhelming the cities of the Roman Empire. Antioch, the metropolis of Asia, was entirely destroyed on the 20th of May, 526, at the very time when the inhabitants of the adjacent country were assembled to celebrate the festival of the Ascension; and it is affirmed that two hundred and fifty thousand persons were crushed by the fall of its sumptuous edifices.

Twenty-five years later, on the coast of Phoenicia, the city of

Berytus, modern Beirut, whose schools were filled with the rising spirits of the age, devoted chiefly to the study of the civil law, was destroyed, and with it many a brilliant young fellow, by earthquake, on the 9th of July, 551.

Gibbon describes thus the earlier earthquake of 365 A. D.: "In the second year of the reign of Valentinian and Valens, on the morning of the 21st day of July, the greater part of the Roman world was shaken by a violent and destructive earthquake. The impression was communicated to the waters; the shores of the Mediterranean were left dry by the sudden retreat of the sea. Then the tide returned with the weight of an immense and irresistible deluge, which was severely felt on the coasts of Sicily, of Dalmatia, of Greece and of Egypt. The city of Alexandria commemorated the fatal day on which 50,000 persons lost their lives in the inundation."

In 1692 an earthquake of terrible violence laid waste in less than three minutes the flourishing colony of Jamaica. Whole plantations changed their place; whole villages were swallowed up. Port Royal, the fairest and wealthiest city which the English had yet built in the new world, renowned for its quays, its warehouses, and for its stately streets, which were said to rival Cheapside, were turned into a mass of ruins. Fifteen hundred of the inhabitants were buried under their own dwellings.

THE EARTHQUAKE OF 1755.

On the morning of the 1st of November, 1755, an earthquake was felt from Scotland on the north to mid-Africa on the south, and from the Azores on the west to Persia on the east, a region three thousand by four thousand miles in extent. In the north its effects, as usual with earthquakes in that region, were slight and few. The Island of Madeira was laid waste, and the ruin extended to Mitylene in the Greek archipelago. In Madrid a violent shock was felt, but no buildings and only two human beings perished. In Fez and in Morocco, on the contrary, great numbers of houses were shaken down, and multitudes of people were buried beneath their ruins. How many of the inhabitants

of the Barbary States perished it is difficult to ascertain from European sources, for Christendom, in spite of its Great Teacher's injunction to love its neighbor as itself, does not count the dead unless they have white skins. Three hundred thousand Chinese dead in Haifong seem to affect us less than three hundred Americans or Europeans. In the Krakatoa eruption the thirty-seven Europeans occasioned more distress than thirty-seven thousand men of yellow skin. It is probable, however, that the "great multitudes" of Arabs who perished in 1755 numbered twelve thousand.

FIFTY THOUSAND SLAIN AT LISBON.

But the widest and most fearful destruction was reserved for Lisbon, capital of Portugal, which had already, in 1531, been shaken down with immense loss of life. The population of the city was collected in the churches on the 1st of November, it being All Saints' Day. At 9 o'clock in the morning all the churches were crowded with kneeling worshipers of each sex, all classes and all ages, when a sudden and most violent shock made every church reel to its foundations. Within the interval of a few minutes two other shocks no less violent ensued, and every church in Lisbon, tall column and towering spire, was hurled to the ground. Thousands and thousands of people were crushed to death, and thousands more grievously maimed, unable to crawl away and left to expire in lingering agony. An Englishman, Mr. Chase, in a letter to his sister, published in Blackwoods Magazine in 1860, says that from his bedroom in the fourth story of an old house, "the most horrid prospect that imagination can figure appeared before my eyes! The house began to heave to that degree that to prevent being thrown down I was obliged to put my arm out of a window and support myself by the wall, every stone in the wall separating and grinding against each other (as did the walls of the other houses with variety of different motions) causing the most dreadful crunching, jumbling noise ears ever heard. * * * I thought the whole city was sinking into the earth. I saw the tops of two pillars meet, and I saw no more." He was thrown to the ground from the fourth story, terribly mutilated, endangered by

the ensuing fires, but finally escaped to give the world the most vivid impression of the great disaster.

The more stately and magnificent the church on that All Saints' Day the more fearful and widespread was the ruin it wrought. About one-fourth of all the houses in the city toppled down. The encumbered streets could scarce afford an outlet to the fugitives; "friends," says an eye-witness, "running from their friends, fathers from their children, husbands from their wives, because everyone fled away from their habitations full of terror, confusion and distraction." The earth seemed to heave and quiver like an animated being. The sun was darkened by the clouds of lurid dust that arose. Frantic with fear, a headlong multitude rushed for safety to a large and newly built stone pier which jutted out into the Tagus, when a sudden convulsion of the river bottom turned the pier bottom uppermost, like a ship on its keel in a tempest, and then engulfed it. Of all the living creatures that thronged it—full three thousand, it is said—not one, even as a corpse, ever rose again.

From the banks of the river other crowds were looking on in speechless affright, when the river itself came rushing in upon them in a torrent, though against wind and tide. It rose at least fifteen feet above the highest spring tides, and then again subsided, drawing in or dashing to pieces everything within its reach, while the very ships in the harbor were violently hurled about. Earth and water alike seemed let loose as scourges upon the devoted city. "Indeed, every element," said a person present, "seemed to conspire to our destruction, for in about two hours after the shock fires broke out in three different parts of the city, occasioned by household goods and kitchen fires being jumbled together." At this time also the wind blew into a fresh gale, which made the fires spread in extent and rage with fury during three days, until there remained but little for them to devour. Many of the maimed and wounded are believed to have perished unseen and unheeded in the flames; some few were almost miraculously restored after being for whole days buried where they fell, without light or food or hope. The total number of deaths was computed at the time as about thirty thousand. Other estimates

give fifty and even a hundred thousand, but until our own careful age reports of earthquakes commonly exaggerate the loss of life.

EARTHQUAKE AT VENEZUELA.

On the 26th of March, 1812, Venezuela was visited by a fearful earthquake, of which the political effect was even more important than the physical. The capital, Caraccas, and several other towns, were destroyed, together with 20,000 people. Many others perished of hunger and in other ways, even as some of the people of Martinique perished, and as more would have perished had it not been for the prompt assistance of the United States and other nations. But the 26th of March, 1812, was Holy Thursday; and the superstitious people, prompted by their priests, believed the awful catastrophe wrought by the forces of Nature to be a visitation and judgment from God upon them for their revolt against their Spanish masters, whose rule the congress of their provinces had thrown off. The Spanish troops, under Monteverde, began a fresh attack upon the disquieted Venezuelans. The revolutionary leader, Miranda, head of the army, had overrun New Granada and laid the foundation of the future United States of Colombia. But the face of affairs was changed by news of the earthquake. Smitten with despair, his soldiers deserted to the Royalists; he lost ground everywhere; the fortress of Puerto Cavello, commanded by the great Bolivar, then a Colonel in the service of the Republic, was surrendered through treachery, and three months after the earthquake, Miranda himself was obliged to capitulate with all his forces, and Venezuela fell once more into the hands of the Royalists.

Lest we of the United States should flatter ourselves that our nation would be superior to such childish superstition, we should remind ourselves that in our cities and throughout our land the Second Adventists are now solemnly affirming and vehemently preaching that the eruption of Mont Pelee is but the beginning of the destruction of the world for supernatural purposes. There is, however, this in our favor, that while the superstition of the Venezuelans led them, guided by their priests, to a base betrayal of their country's cause, the superstition of the ignorant preachers of the end of the world has no such shameful moral consequence, and is rather to be pitied than denounced.

CHAPTER XXIII.

WHIRLWINDS, CYCLONES, HURRICANES, AND TORNADOES.

Whirlwinds—How Caused—Velocity—The Dread of the Desert—Cyclones—How Formed—Course—Velocity—Where They Take Place—Damage Done—Hurricanes—How Formed—Danger—Course—Climax—Track—Phenomena—Cause of Tornadoes—Their Appearance—Damage Done—When They Occur—What to Do.

In enumerating the world's disasters, it may not be out of place to stop and briefly glance at the terrible havoc wrought by windstorms, their immediate cause and the danger attending them.

First under the head of windstorms may be mentioned whirlwinds. These are most frequent in the desert, where the earth is level, the heat extreme, and the air at rest. Whirlwinds occur during the day, when the sun has warmed the earth and the earth in turn has warmed the lower strata of air, the atmosphere becoming cooler as its altitude from the earth increases. The air is also denser and heavier at the earth's surface because the attraction of the earth pulls it down, causing the upper air to rest upon the lower.

Scientific research shows that whirlwinds are caused mainly by heat. The high temperature and density of the lower air disturbs the equilibrium, hence the whirl. The height and distance to which the whirls extend depend upon circumstances, the location and the opposition it meets. In regions not flat, the lower air flows in from the slopes as it becomes heated and the whirl is gradually destroyed.

Whirlwinds frequently become of great size and do great damage, the air in motion carrying light objects upward to a height of thousands of feet. The whirling is usually accompanied by a roaring sound, and the narrower the path the faster the motion and the louder the noise. The desert sand storms often swallow up whole caravans, hence have come to bear the name of "devil" from the evil way in which they come and go and the destruction they bring about.

CYCLONES.

Cyclones are somewhat similar in effect to whirlwinds, but their cause embraces new elements. Besides level surface and intense

heat, they are influenced by the earth's rotation and the condensing of vapor. The cyclones of the Bay of Bengal have been studied with great care, and meteorologists are a unit in concluding they arise much as the desert whirlwind does—in a place of heat and quiet. The calm that precedes a cyclone is always noticeable; the air is close and oppressively warm; the water all around is smooth and peaceful. The greater the calm and composure and the longer the preparatory stage, the more fearful the storm. This calm is in fact the embryo of the cyclone. Cyclones which take place in the tropics are attended by heavy rain due to the vapor condensing at the center and falling to the earth. When on sea, cyclones often last for days and do untold damage.

The regions encompassed by cyclones are the seas south and east of India and China, in the location of the West Indian Islands, around Madagascar and near Australia. They invariably run westward near the equator, then turn to the pole and obliquely turn eastward again.

A remarkable feature regarding cyclones is that no violent ones have so far occurred within 400 miles of the equator, this being due to the earth's rotation, which at this point is zero. There would be no violent storms if the earth stood still.

HURRICANES.

The origin of a hurricane is not fully settled. Its accompanying phenomena, however, are significant to even the casual observer. A long swell on the ocean usually precedes it. This swell may be forced to great distances in advance of the storm and be observed two or three days before the storm strikes. A faint rise in the barometer may be noticed before the sharp fall follows. Wisps of thin, cirrus cloud float for 200 miles around the storm center. The air is calm and sultry until a gentle breeze springs from the southeast. This breeze becomes a wind, a gale, and, finally, a tempest, with matted clouds overhead, precipitating rain and a churning sea below throwing clouds of spume into the air.

Here are all the terrible phenomena of the West Indian hurricane—the tremendous wind, the thrashing sea, the lightning, the

bellowing thunder, and the drowning rain that seems to be dashed from mighty tanks with the force of Titans.

But almost in an instant all these may cease. The wind dies, the lightning goes out, the rain ceases, and the thunder bellows only in the distance. The core of the storm is overhead. Only the waves of the sea are churning. There may be twenty miles of this central core, a diameter of only one-thirtieth that of the storm. It passes quickly, and with as little warning as preceded its stoppage the storm closes in again, but with the wind from the opposite direction, and the whole phenomena suggesting a reversal of all that has gone before.

The cyclone is confined to a narrow track and it has no long-drawn-out horrors. Its climax is reached in a moment. The hurricane, however, grows and grows, and when it has reached to 100 or 120 miles an hour nothing can withstand it.

No storm possible in the elements presents the terrors that accompany the hurricane.

No more graphic portrayal of the hurricane is found in literature than that of *L'Isle Derniere* by Lafcadio Hearn, which we here reprint:

"One great noon, when the blue abyss of day seemed to yawn over the world more deeply than ever before, a sudden change touched the quicksilver smoothness of the waters—the swaying shadow of a vast motion. First the whole sea circle appeared to rise up bodily at the sky; the horizon curve lifted to a straight line; the line darkened and approached—a monstrous wrinkle, an immeasurable fold of green water moving swift as a cloud shadow pursued by sunlight. But it had looked formidable only by startling contrast with the previous placidity of the open; it was scarcely two feet high; it curled slowly as it neared the beach and combed itself out in sheets of woolly foam with a low, rich roll of thunder. Swift in pursuit another followed—a third, a feeble fourth; then the sea only swayed a little and stilled again.

"Irregularly the phenomenon continued to repeat itself, each time with heavier billowings and briefer intervals of quiet, until at last the whole sea grew restless and shifted color and flickered green—the swells became shorter and changed form. * * *

"The pleasure-seekers of Last Island knew there must have been a 'great blow' somewhere that day. Still the sea swelled, and a splendid surf made the evening bath delightful. Then just at sundown a beautiful cloud bridge grew up and arched the sky with a single span of cottony, pink vapor that changed and deepened color with the dying of the iridescent day. And the cloud bridge approached, strained and swung round at last to make way for the coming of the gale—even as the light bridges that traverse the dreamy Teche swing open when the luggermen sound through their conch shells the long, bellowing signal of approach.

"Then the wind began to blow from the northeast, clear, cool.
 * * * Clouds came, flew as in a panic against the face of the sun, and passed. All that day, through the night, and into the morning again the breeze continued from the northeast, blowing like an equinoctial gale. * * * * *

"Cottages began to rock. Some slid away from the solid props upon which they rested. A chimney tumbled. Shutters were wrenched off; verandas demolished, light roofs lifted, dropped again, and flapped into ruins. Trees bent their heads to earth. And still the storm grew louder and blacker with every passing hour.
 * * * * *

"So the hurricane passed, tearing off the heads of prodigious waves to hurl them a hundred feet in air, heaping up the ocean against the land—upturning the woods. Bays and passes were swollen to abysses; rivers regorged; the sea marshes changed to roaring wastes of water. Before New Orleans the flood of the mile-broad Mississippi rose six feet above highest water mark. One hundred and ten miles away Donaldsonville trembled at the towering tide of the Lafourche. Lakes strove to burst their boundaries; far-off river steamers tugged wildly at their cables, shivering like tethered creatures that hear by night the approaching howl of the destroyer."

Statistics show the number of hurricanes in the West Indies in the last 400 years to be about an average of one a year. More than three-fourths of these have occurred during the months of July, August and September. The balance of the trade winds breaks the force by friction and they are thus destroyed. Cyclones,

once formed, are carried westward toward the West Indies. They then move a little to the northwest and strike the United States, doing little or no damage according to the force. This undoubtedly explains the destruction of Galveston in the year 1900.

TORNADOES—HOW THEY DIFFER FROM OTHER STORMS.

Tornadoes differ from other storms in their excessive violence, their restricted area and their rapid advance. They are most numerous in Kansas, Missouri and Illinois. Their greatest frequency is in the afternoons of May, June and July. Quiet and calm usually precede them. Their advance is to the northeast and at the rate of thirty miles an hour. When first observed they are usually a dark, funnel-shaped mass hanging from dark clouds. A roaring sound is heard all along the track. Within its funnel various objects may be detected which have been snatched from the ground in transit. At varying heights these objects are thrown out of the current and dropped with violence. There is seldom time to escape their track, yet one should make every effort to do so, provided they keep their presence of mind. Usually the storm has come and gone before they have had time to think.

The wind during the tornado often travels 100 miles an hour. In the trail of the storm's path strange freaks of nature are often seen; clothing is torn to rags, doors split to atoms, wheat driven many feet into the ground; sister trees standing side by side, a few feet apart, one taken, the other left. The track averages only about one-half mile in width and the greatest destruction is frequently done within a hundred feet.

An illustration of the damage done by these storms came under my observation not long since. A family, in attempting to save their lives, instantly rushed out of the house. The mother was carried three hundred yards, thrown against a barn and killed; a boy of seven years was unharmed, the father and baby killed, and the house, a small frame building, was picked up and carried a half mile away and carefully set down as though nothing had disturbed it. But stranger still, it frequently happens that in houses where the windows and doors have been closed, the house explodes; roofs are carried away, doors and windows broken outward, showing that the heated air makes its own way of escape.

CHAPTER XXIV.

THE JOHNSTOWN FLOOD.

Great Disaster in the United States—Loss of Life in Johnstown Flood—Men, Women and Children—Breaking of Dam in Conemaugh Lake—People Warned—Relief Quick—Damage of Other Towns—Communication Cut Off—Fire and Darkness Add Horror—Cambria City Swept Away, Millville Gone, Woodville and South Fork Wrecked—Stories by Survivors—Identification of Bodies, Clearing the Debris.

In the shadow of the awful catastrophe on the Island of Martinique, the great disasters that have befallen in the United States through the anger of the elements come back with renewed force. Galveston, so recently in the clutches of despair, and Johnstown, that was swept away just twelve years before Mount Pelee blew upon the city of St. Pierre its breath of destruction causes us as a people to stop and think.

QUESTIONING THE POWERS THAT BE.

It is these awful tragedies visited upon the people of certain districts without seeming reason that cause rebellion in the heart of the questioning. Man is more merciful than his Creator, cries the skeptic. Who that pretends to be actuated by the least of human sensibilities would treat his children with such needless severity? There is no way to answer such questions except as the scientist answers them, that nature is nothing but a passionless, unthinking force, and the laws that operate are changeless. In that way man can understand something of the universe as a whole, but understanding does not lessen the pain caused by even a knowledge of such disasters. Were man as heartless as we are told nature is, what must then be the sufferings of the unfortunates that are suddenly cast homeless and friendless upon the world, their savings swept away, their bodies sorely bruised, if not wounded to the death!

But there is charity in the world and, when something happens

to thoroughly arouse the sympathies, there is a love that passeth understanding. It is such horrors as the recent volcanic eruption in Martinique, the Galveston tidal wave, and the Johnstown flood that prove the divinity, the brotherhood of man.

FIRST GREAT DISASTER IN THE UNITED STATES.

Previous to the year 1900, the Johnstown disaster was the most frightful calamity known in the history of the United States. It occurred on Friday, May 31st, 1889, at 12:45 p. m. Johnstown was situated in the Conemaugh Valley in Pennsylvania. It was a town of 30,000 inhabitants. Above it in the mountains slept the waters of the Conemaugh Lake, a beautiful body of water formed by building a dam across a deep gorge in the mountain. With not even a warning shout to apprise the inhabitants the dam gave way, and that great mass of water came leaping and tumbling down the valley to Johnstown, and the city with its inhabitants was drowned in a flood of angry waters. When the deluge subsided where had stood the homes of so many happy toilers, there were but twisted and shapeless piles of driftwood and the bodies of the dead and dying.

LOSS OF LIFE.

From the lake to Johnstown in a straight line was but two and a half miles, but following the winding valley the waters had to cover thirteen miles before they struck the town. But the flood moved with such terrific speed that within a few minutes after the breaking of the dam nearly 2,300 men, women and children were lying dead in the wreckage of the city; millions of dollars' worth of property were destroyed, and thousands of people beggared.

Hundreds of business buildings and residences were destroyed, and less than a score of the structures composing the town were uninjured; complete paralysis followed, and many said, as in the case of Galveston, the city would not be rebuilt; hundreds were crazed by their sufferings and never regained their reason; thieves swarmed to the place and looted the bodies of the dead until the arrival of several thousand State troops put an end to the carnival

of crime; the impoverished survivors were cared for until they could get upon their feet again, relief pouring in from everywhere in the shape of hundreds of thousands of dollars in cash and thousands of carloads of supplies of all sorts; the business men plucked up courage and went to work with a will when the apathy succeeding the calamity had worn off, and to-day Johnstown is greater than ever, and has added to both her wealth and population.

CONEMAUGH LAKE—ITS LOCATION.

Conemaugh Lake is three and one-half miles in length, one and one-quarter miles in width, and in some places one hundred feet in depth, located on a mountain three hundred feet above the level of Johnstown, its waters being held within bounds by a huge earth dam nearly one thousand feet long, ninety feet thick and one hundred and twenty feet in height, the top having a breadth of over twenty feet. It was once a reservoir and a feeder for the Pennsylvania Canal. It had been widened and deepened and was the property of the South Fork Fishing and Hunting Club, an organization of rich and influential citizens of Pittsburg. It was a constant menace to the residents of the Conemaugh Valley, but engineers of the Pennsylvania Railroad regularly inspected it once a month and pronounced it safe.

The club leased the lake in 1881 from the Pennsylvania Railroad Company. It paid no attention to the fears of the people of Johnstown, but merely quoted the opinions of experts to the effect that nothing short of an extraordinary convulsion of nature could affect the protecting dam.

Johnstown's geographical situation is one that renders it peculiarly liable to terrible loss of life in the event of such a casualty as that reported. It is a town built in a basin of the mountains and girt about by streams, all of which finally find their way into the Allegheny River, and thence into the Ohio. On one side of the town flows the Conemaugh River, a stream which during the dry periods of the summer drought can be readily crossed in many places by stepping from stone to stone, but which speedily becomes a raging mountain torrent, when swollen by the spring freshets or heavy summer rains.

On the other side of the town is the Stony Creek, which gathers up its own share of the mountain rains and whirls them along toward Pittsburg. The awful flood caused by the sudden outpouring of the contents of the reservoir, together with the torrents of rain that had already swollen these streams to triple their usual violence, is supposed to be the cause of the sudden submersion of Johnstown and the drowning of so many of its citizens. The water, unable to find its way rapidly enough through its usual channels, piled up in overwhelming masses, carrying before it everything that obstructed its onward rush upon the town.

PEOPLE HAD BEEN WARNED.

Johnstown, the center of the great disaster, is on the main line of the Pennsylvania Railroad, 276 miles from Philadelphia. It is the headquarters of the great Cambria Iron Company, and its acres of ironworks fill the narrow basin in which the city is situated. The rolling mill and Bessemer steel works employ 6,000 men. The mountains rise quite abruptly almost on all sides, and the railroad track, which follows the turbulent course of the Conemaugh River, is above the level of the iron works. The summit of the Allegheny mountains is reached at Gallatin, about twenty-four miles east of Johnstown.

The people of Johnstown had been warned of the impending flood as early as 1 o'clock in the afternoon, but not a person living near the reservoir knew that the dam had given way until the flood swept the houses off their foundations and tore the timbers apart. Escape from the torrent was impossible. The Pennsylvania Railroad hastily made up trains to get as many people away as possible, and thus saved many lives.

OTHER TOWNS WRECKED.

Four miles below the dam lay the town of South Fork, where the South Fork itself empties into the Conemaugh River. The town contained about 2,000 inhabitants, and four-fifths of it was swept away.

Four miles further down, on the Conemaugh River, which runs

parallel with the main line of the Pennsylvania Railroad, was the town of Mineral Point. It had 800 inhabitants, 90 per cent of the houses being on a flat and close to the river. Few of them escaped.

Six miles further down was the town of Conemaugh, and here alone was there a topographical possibility of the spreading of the flood and the breaking of its force. It contained 2,500 inhabitants and was wholly devastated.

Woodvale, with 2,000 people, lay a mile below Conemaugh, in the flat, and one mile further down were Johnstown and its cluster of sister towns, Cambria City, Conemaugh borough, with a total population of 30,000.

On made ground, and stretching along right at the river verge, were the immense iron works of the Cambria Iron and Steel Company, which had \$5,000,000 invested in the plant.

REBOUND OF FLOOD.

The great damage to Johnstown was largely due to the rebound of the flood after it swept across. The wave spread against the stream of Stony Creek and passed over Kernsville to a depth of thirty feet in some places. It was related that the lumber boom had broken on Stony Creek, and the rush of tide down stream, coming in contact with the spreading wave, increased the extent of the disaster in this section. In Kernsville, as well as in Hornerstown, across the river, the opinion was expressed that so many lives would not have been lost had the people not believed from their experience with former floods that there was positively no danger beyond the filling of cellars or the overflow of the shores of the river. After rushing down the mountains from the South Fork dam, the pressure of water was so great that it forced its way against the natural channel not only over Kernsville and Hornerstown, but all the way up to Grubbtown, on Stony Creek.

By the terrible flood communication by rail and wire was nearly all cut off.

FIRE ADDS HORROR TO THE WRECK.

The exact number of the victims of this dreadful disaster probably will never be known. Bodies were found beyond Pittsburg,

which in all probability were carried to that place from Johnstown and its suburbs. The terrible holocaust at the barricade of wrecks at the bridge of the Pennsylvania Railroad below Johnstown, where hundreds of men, women and children who were saved from the waves were burned to death, caused a terrible loss of life. The loss of property was about \$10,000,000.

EVERYTHING OVER IN A FEW MINUTES.

All was over in a few moments' time. The flood rushed down the valley when released from its prison, swept earth, trees, houses and human beings before it, depositing the vast debris in front of the railroad bridge, which formed an impassable barrier to the passage of everything except the vast agent of destruction—the flood—which overflowed it and passed on to wreak fresh vengeance below.

GORGE AT THE RAILROAD BRIDGE.

One of the most terrible sights was the gorge at the railroad bridge. This gorge consisted of debris of all kinds welded into an almost solid mass. Here were the charred timbers of houses and the charred and mutilated remains of human beings. The fire at this point, which lasted until June 3 and had still some of its vitality left on the 5th, was one of the incidents of the Johnstown disaster that will become historic. The story has not been and cannot be fully told. One could not look at it without a shock to his sensibilities. So tangled and unyielding was the mass that even dynamite had little effect upon it. One deplorable effect, however, was to dismember the few parts of human bodies wedged in the mass that the ruthless flood left whole.

From the western end of the railroad bridge the view was but a prelude to the views that were to follow. Looking across the gorge the first object the eye caught in the ruined town is the Melville school, standing as a guardian over the dead—a solitary sentinel left on the field after the battle. Still further on and near the center of the town were the offices and stores of the Cambria Iron Company, the most populous and busy part of the city until the

31st of May. Part of the ground was covered by a part of the shops of the Cambria Company. Not a vestige of these remained.

THE GREAT STORM OF FRIDAY.

When the great storm of Friday came the dam was again a source of uneasiness, and early in the morning the people of Johnstown were warned that the dam was weakening. They had heard the same warning too often, however, to be impressed, and many jeered at their informants. Some of those that jeered were before nightfall scattered along the banks of the Conemaugh, cold in death, or met their fate in the blazing pile of wrecked houses wedged together at the big stone bridge. Only a few heeded the warning, and these made their way to the hillside, where they were safe.

Early in the day the flood caused by the heavy rains swept through the streets of Johnstown. Every little mountain stream was swollen by the rains; rivulets became creeks and creeks were turned into rivers. The Conemaugh, with a bed too narrow to hold its greatly increased body of water, overflowed its banks, and the damage caused by this overflow alone would have been large. But there was more to come, and the results were so appalling that there lived not a human being who was likely to anticipate them.

At 1 o'clock in the afternoon the resistless flood tore away the huge lumber boom on Stony Creek. This was the real beginning of the end. The enormous mass of logs was hurled down upon the doomed town. The lines of the two water courses were by this time obliterated, and Stony Creek and the Conemaugh River were raging seas. The great logs levelled everything before them, crushing frame houses like eggshells and going on unchecked until the big seven-arch stone bridge over the Conemaugh River just below Johnstown was reached.

THE ONLY POSSIBLE WAY.

Had the logs passed this bridge Johnstown might have been spared much of its horror. There were already dead and dying, and homes had already been swept away, but the dead could only

be counted by dozens and not yet by thousands. Wedged fast at the bridge, the logs formed an impenetrable barrier. People had moved to the second floor of their houses and hoped that the flood might subside. There was no longer a chance to get away, and had they known what was in store for them the contemplation of their fate would have been enough to make them stark mad. Only a few hours had elapsed from the time of the breaking of the lumber boom when the waters of Conemaugh Lake rushed down upon them. The scoffers realized their folly. The dam had given way, and the immense body of water which had rested in a basin five miles long, two miles wide and seventy feet deep was let loose to begin its work of destruction.

The towering wall of water swooped down upon Johnstown with a force that carried everything before it. Had it been able to pass through the big stone bridge a portion of Johnstown might have been saved. The rampart of logs, however, checked the torrent and half the houses of the town were lifted from their foundations and hurled against it. This backed the water up into the town, and as there had to be an outlet somewhere the river made a new channel through the heart of the lower part of the city. Again and again did the flood hurl itself against the bridge, and each wave carried with it houses, furniture and human beings. The bridge stood firm, but the railway embankment gave way, and some fifty people were carried down to their deaths in the new break. Through this new outlet the waters were diverted in the direction of the Cambria Iron Works, a mile below, and in a moment the great buildings of a plant valued at \$5,000,000 were engulfed and laid low. Here had gathered a number of iron workers, who felt that they were out of the reach of the flood, and almost before they realized their peril they were swept away into the seething torrent.

DARKNESS ADDS HORROR.

It was now night, and darkness added to the terror of the situation. Then came flames to make the calamity all the more appalling. Hundreds of buildings had been piled up against the stone bridge. The inmates of but few of them had had time to

escape. Just how many people were imprisoned in that mass of wreckage may never be known, but the number was estimated at between 1,000 and 2,000. The wreckage was piled to a height of fifty feet, and suddenly flames began leaping up from the summit. A stove had set fire to that part of the wreck above the water, and the scene that was then witnessed is beyond description. Shrieks and prayers from the unhappy beings imprisoned in the wrecked houses pierced the air, but little could be done. Men, women and children, held down by timbers, watched with indescribable agony the flames creep slowly toward them until the heat scorched their faces, and then they were slowly roasted to death.

Those who were held fast in the wreck by an arm or a leg begged piteously that the imprisoned limb be cut off. Some succeeded in getting loose with mangled limbs, and one man cut off his arm that he might get away. Those who were able worked like demons to save the unfortunates from the flames, but hundreds were burned to death.

CAMBRIA CITY SWEEP AWAY.

Meanwhile Johnstown had been literally wiped from the face of the earth, Cambria City was swept away and Conemaugh borough was a thing of the past. The little village of Millville, with a population of one thousand, had nothing left of it but the school house and the stone buildings of the Cambria Iron Company. Woodvale was gone and South Fork wrecked. Hundreds of people were drowned in their homes, hundreds were swept away in their dwellings and met death in the debris that was whirled madly about on the surface of the flood; hundreds, as has been said, were burned, and hundreds who sought safety on floating driftwood were overwhelmed by the flood or washed to death against obstructions. The instances of heroism and self-sacrifice were never excelled, perhaps not equaled, on a battle-field. Men rather than save themselves alone died nobly with their families, and mothers willingly gave up their lives rather than abandon their children.

"At 3 o'clock in the afternoon," said Electrician Bender, of the Western Union at Pittsburg, "the girl operator at Johnstown was cheerfully ticking away; she soon had to abandon the office on the

first floor because the water was three feet deep there. She said she was wiring from the second story, and the water was gaining steadily. She was frightened, and said that many houses around were flooded. This was evidently before the dam broke, for our man here said something encouraging to her, and she was talking back as only a cheerful girl operator can when the receiver's skilled ears caught a sound of the wire made by no human hand. The wires had grounded or the house had been swept away in the flood, no one knows which now. At 3 o'clock the girl was there and at 3:07 we might as well have asked the grave to answer us."

DEEDS OF HEROISM.

Edward Deck, a young railroad man of Lockport, saw an old man floating down the river on a tree trunk, with agonized face and streaming gray hair. Deck plunged into the torrent and brought the old man safely ashore. Scarcely had he done so when the upper story of a house floated by on which Mrs. Adams, of Cambria, and her two children were both seen. Deck plunged in again, and while breaking through the tin roof of the house cut an artery in his left wrist, but though weakened with loss of blood, he succeeded in saving both mother and children.

J. W. Esch, a brave railroad employe, saved sixteen lives at Nineveh.

At Bolivar a man, woman and child were seen floating down in a lot of drift. The mass of debris commenced to part, and by desperate efforts the husband and father succeeded in getting his wife and little one on a floating tree. Just then the tree washed under the bridge and a rope was thrown out. It fell upon the man's shoulders. He saw at a glance that he could not save his dear ones, so he threw the means of safety to one side and gripped in his arms those who were with him. A moment later the tree struck a floating house. It turned over, and in a second the three persons were in the seething waters, being carried to their death.

C. W. Hoppenstall of Lincoln avenue, East End, Pittsburg, distinguished himself by his bravery. He was a messenger on the mail train which had to turn back at Sang Hollow. As the train



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CASTRIES, ISLAND OF ST. LUCIA.

The beautiful trees shown on this island are the Banyan. They grow very luxuriantly in all of the West Indian Islands.



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BIRDSEYE VIEW OF THE TOWN OF CHARLOTTE, ISLAND OF ST. THOMAS.

This island is the largest and most prosperous in the Danish West Indies. 



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TOWN OF ST. KITTS, ISLAND OF ST. CHRISTOPHER.

The above picture shows another of the West Indian Islands, belonging to Great Britain.



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STREET SCENE, BRIDGETOWN, ISLAND OF BARBADOS.

To the right is a beautiful estate, showing that even in this island there is much wealth as well as poverty.

passed a point where the water was full of struggling persons, a woman and child floated in near shore. The train was stopped and Hoppenstall undressed, jumped into the water, and in two trips saved both mother and child.

The special train pulled in at Bolivar at 11:30 o'clock and trainmen were notified that further progress was impossible. The greatest excitement prevailed at this place, and parties of citizens were all the time endeavoring to save the poor unfortunates that were being hurled to eternity on the rushing torrent.

SCENES AT BOLIVAR.

The tidal wave struck Bolivar just after dark and in five minutes the Conemaugh rose from six to forty feet and the waters spread out over the whole country. Soon houses began floating down, and clinging to the debris were men, women and children, shrieking for aid. A large number of citizens at once gathered on the county bridge and they were re-enforced by a number from Garfield, a town on the opposite side of the river. They brought a number of ropes, and these were thrown into the boiling waters as persons drifted by in efforts to save some poor beings. For half an hour all efforts were fruitless, until at last, when the rescuers were about giving up all hope, a little boy astride a shingle roof managed to catch hold of one of the ropes. He caught it under his left arm and was thrown violently against an abutment, but managed to keep hold, and was successfully pulled on to the bridge, amid the cheers of the onlookers. His name was Hessler, and his rescuer was a train hand named Carney. The lad was taken to the town of Garfield and cared for in the home of J. P. Robinson. The boy was about 16 years old.

STORY BY A SURVIVOR.

His story of the frightful calamity is as follows: "With my father I was spending the day at my grandfather's house in Cambria City. In the house at the time were Theodore, Edward and John Kintz, and John Kintz, Jr., Miss Mary Kintz, Mrs. Mary

Kintz, wife of John Kintz, Jr., Miss Tracy Kintz, Miss Rachel Smith, John Hirsch, four children, my father and myself. Shortly after 5 o'clock there was a noise of roaring waters and screams of people. We looked out the door and saw persons running. My father told us not to mind, as the waters would not rise further. But soon we saw houses being swept away, and then we ran to the floor above. The house was three stories, and we were at last forced to the top one. In my fright I jumped on the bed. It was an old-fashioned one with heavy posts. The water kept rising and my bed was soon afloat. Gradually it was lifted up. The air in the room grew close and the house was moving. Still the bed kept rising and pressed the ceiling. At last the post pushed the plaster. It yielded and a section of the roof gave way. Then suddenly I found myself on the roof and was being carried down stream. After a little this roof commenced to part, and I was afraid I was going to be drowned, but just then another house with a single roof floated by and I managed to crawl on it, and floated down until, nearly dead with cold, when I was saved. After I was freed from the house I did not see my father. My grandfather was on a tree, but he must have been drowned, as the waters were rising fast. John Kintz, Jr., was also on a tree. Miss Mary Kintz and Mrs. Mary Kintz I saw drowned. Miss Smith was also drowned. John Hirsch was in a tree, but the four children were drowned. The scenes were terrible. Live bodies and corpses were floating down with me and away from me. I would hear persons shriek, and then they would disappear. All along the line were people who were trying to save us, but they could do nothing, and only a few were caught."

The boy's story is but one incident, and shows what happened to one family. God only knows what has happened to the hundreds who were in the path of the rushing water. It is impossible to get anything in the way of news, save meagre details.

ANOTHER EYE-WITNESS.

An eye-witness at Bolivar Block Station tells a story of unparalleled horror which occurred at the lower bridge, which crosses the Conemaugh at this point. A young man and two women were seen

coming down the river on a part of a floor. At the upper bridge a rope was thrown them. This they all failed to catch. Between the two bridges the man was noticed to point toward the elder woman, who, it is supposed, was his mother. He was then seen to instruct the women how to catch the rope which was being lowered from the other bridge. Down came the raft with a rush. The brave man stood with his arms around the two women. As they swept under the bridge he reached up and seized the rope. He was jerked violently away from the two women, who failed to get a hold on the life line. Seeing that they would not be rescued he dropped the rope and fell back on the raft, which floated on down. The current washed the frail craft in toward the bank. The young man was enabled to seize hold of a branch of a tree. The young man aided the two women to get up into the tree. He held on with his hands and rested his feet on a pile of driftwood. A piece of floating debris struck the drift, sweeping it away. The man hung with his body immersed in the water. A pile of drift soon collected, and he was enabled to get another secure footing. Up the river there was a sudden crash and a section of the bridge was swept away and floated down the stream, striking the tree and washing it away. All three were thrown into the water and were drowned before the eyes of the horrified spectators just opposite the town of Bolivar.

Early in the evening a woman with her two children were seen to pass under the bridge at Bolivar, clinging to the roof of a coal house. A rope was lowered to her, but she shook her head and refused to desert the children. It was rumored that all three were saved at Cokeville, a few miles below Bolivar. A later report from Lockport says that the residents succeeded in rescuing five people from the flood, two women and three men. One man succeeded in getting out of the water unaided. They were kindly taken care of by the people of the town.

A little girl passed under the bridge just before dark. She was kneeling on a part of a floor and had her hands clasped as if in prayer. Every effort was made to save her, but they all proved futile. A railroader who was standing by remarked that the pitious appearance of the little waif brought tears to his eyes. All

night long the crowd stood about the ruins of the bridge, which had been swept away at Bolivar. The water rushed past with a roar, carrying with it parts of houses, furniture and trees. The flood had evidently spent its force up the valley. No more living persons were being carried past. Watchers with lanterns remained along the banks until daybreak, when the first view of the awful devastation of the flood was witnessed.

CRAZED BY THEIR SUFFERINGS.

When the great waves of death swept through Johnstown the people who had any chance of escape ran hither and thither in every direction. They did not have any definite idea where they were going, only that a crest of foaming waters as high as the house-tops was roaring down upon them through the Conemaugh, and that they must get out of the way of that. Some in their terror dived into the cellars of their houses, though this was certain death. Others got up on the roofs of their houses and clambered over the adjoining roofs to places of safety. But the majority made for the hills, which girt the town like giants. Of the people who went to the hills the water caught some in its whirl. The others clung to trees and roots and pieces of debris which had temporarily lodged near the banks, and managed to save themselves. These people either stayed out on the hills wet, and in many instances naked, all night, or they managed to find farm houses which sheltered them. There was a fear of going back to the vicinity of the town. Even the people whose houses the water did not reach abandoned their homes and began to think of all of Johnstown as a city buried beneath the water.

RETURN FROM THE HILLS.

When these people came back to Johnstown on the day after the wreck of the town they had to put up in sheds, barns, and in houses which had been but partially ruined. They had to sleep without any covering in their wet clothes, and it took the liveliest kind of skirmishing to get anything to eat. Pretty soon a citizens' committee was established, and nearly all the male survivors of the

flood were immediately sworn in as deputy sheriffs. They adorned themselves with tin stars, which they cut out of pieces of sheet metal found in the ruins. Sheets of tin with stars cut out of them turned up continually, to the surprise of the Pittsburg workmen who endeavored to get the town in shape. Some idea of the extent of the wreck of the town may be gathered from the fact that of 300 prominent buildings only sixteen were still standing and these were more or less injured.

For the first day or so people were dazed by what had happened, and for that matter they are dazed still. They went about helpless, making vague inquiries for their friends and hardly feeling the desire to eat anything. Finally the need of creature comforts overpowered them, and they woke up to the fact that they were faint and sick. This was to some extent changed by the arrival of tents and by the systematic military care for the suffering.

THE BRIDGE WHERE HUNDREDS LOST THEIR LIVES.

The "fatal bridge," as it is now called, and which wreaked such awful destruction, is described by a writer in this way:

"The bridge, whose 'resistance of the torrent' was the matter of so much talk, was a noble four-track structure, just completed, fifty feet wide on top, thirty-two feet high above the water line, consisting of seven skew spans of fifty-eight feet each. It still remains wholly uninjured, except that it is badly spalled on the upper side by blows from the wreckage, but that it so remains is due solely to the accident of its position, and not to its strength, although it was and is still the embodiment of solidity.

"Had the torrent struck it, it would have swept it away as if it had been built of cardboard, leaving no track behind; but fortunately (or unfortunately) its axis was exactly parallel with the path of the flood, which hence struck the face of the mountain full, and compressed the whole of its spoils gathered in a fourteen-mile course into one inextricable mass, with the force of tens of thousands of tons moving at nearly sixty miles per hour.

"Its spoils consisted of (1) every tree the flood had touched

in its whole course, with trifling exceptions, including hundreds of large trees, all of which were stripped of their bark and small limbs almost at once; (2) all the houses in a thickly settled town three miles long and one-fourth to one-half mile wide; (3) half the human beings and all the horses, cows, cats, dogs, and rats that were in the houses; (4) many hundreds of miles of telegraph wire that was on strong poles in use, and many times more than this that was in stock in the mills; (5) perhaps fifty miles of track and track material, rails and all; (6) locomotives, pig iron, brick, stone, boilers, steam engines, heavy machinery, and other spoil of a large manufacturing town.

"All this was accumulated in one inextricable mass, which almost immediately caught fire from some stove which the waters had not touched. Hundreds if not thousands of human beings, dead and alive, were caught in it, many by the lower part of the body only. Eye-witnesses describe the groans and cries which came from that vast holocaust for nearly the whole night as something almost unbearable to listen to, yet which could not be escaped. Hundreds, undoubtedly, suffered a slow death by fire; yet we cannot doubt that the vast majority of the men, women and children in that fearful jam, which covered fully thirty acres, and perhaps more, were already dead when the fire began.

"Johnstown proper is in a large basin formed by the junction of the Conemaugh and the almost equally large Stony Creek, flowing into the Conemaugh from the south, just above the bridge. The bridge being hermetically sealed, it and the adjacent embankment formed a second dam about thirty feet high, Johnstown serving as a bed of a reservoir which we should judge to be nearly large enough to hold the entire contents of the reservoir above, except that it was already filled knee-deep or more by an unusually heavy but annual spring flood.

"One offshoot of the main torrent was deflected southward by the Gautier Works, and went tearing through the heart of the more southerly portion of the town, and still another similar branch was split off from the main torrent further down; but in the main, the direct force of the torrent did not strike this southerly portion of the town.

"It struck first against the jam, and thus lost most of its fierce energy, flowing thence southward in a heavy stream, which tossed about houses in the most fantastic way, so that this part of the town looks much like a child's toy village poured out of a box haphazard; the houses are not torn to pieces generally.

"About half the loss of life was in this district, for all Johnstown became speedily a lake twenty or more feet deep, and stayed so all night; and it was here, and not in the direct path of the flood, that all the 'rescuing' of people from roofs and floating timbers occurred.

"Nothing of the kind was possible in the flood itself. Likewise, after the break in the embankment had occurred, and the flood began to recede from Johnstown, it was from this district chiefly that people were carried off down stream on floating wreckage. All that came within the direct path of the flood was fast within the jam.

"The existence of this temporary Johnstown reservoir naturally broke the continuity of the flood discharge, and transformed it into something not greatly different from an ordinary but very heavy freshet. Cambria City, just below the bridge, was badly wrecked, with the loss of hundreds of lives; but in the main, from Johnstown down, the flood ceased to be very destructive. It took out almost every bridge it came to for fifty miles, and washed away tracks and did other minor damage, but the Johnstown 'reservoir' saved hundreds of lives below it by equalizing the flow."

THE DAY EXPRESS DISASTER.

John Barr, the conductor in charge of the Pullman parlor car on the first section of the day express, which was caught in the flood at Conemaugh, told a thrilling story of his experience.

His train, with two others, had been run onto a siding on high ground at Conemaugh Station, opposite the big round-house. He saw the water coming, and describes it as having the appearance of a mountain moving toward him.

He immediately ran to his car and shouted to his passengers to run for their lives. John Davis, connected with a large rolling

mill near Lancaster, was traveling from Colorado with his invalid wife and two children, aged 4 and 6. Mr. Davis was engaged in getting his wife off the car, and Conductor Barr grabbed up the two children and, with one under each arm, started for the hills, with the water right at his heels. He ran a distance of about 200 yards and barely managed to deposit his precious burden on safe ground before the flood swept past him.

Mr. Barr said it would never be known how many persons lost their lives from the ill-fated train. The one passenger coach which was carried away had some people in it; how many, nobody knows. At least twenty were drowned. A freight train was between the day express and the flood on an adjoining track, and this served to in a measure protect his train.

Some idea of the terrible force of the flood may be gained from Mr. Barr's statement that the engines in the round-house, thirty-seven in number, swept past him standing half way out of the water, their forty tons of weight not being sufficient to take them beneath the surface. The baggage car was lifted clear out of the water and landed on the other side of the river.

WONDERFUL ESCAPES.

A Miss Wayne, who was traveling from Pittsburg to Altoona, had a wonderful escape. She was caught in the swirl and almost all of her clothing torn from her person, and she was providentially thrown by the angry waters clear of the rushing flood.

Miss Wayne said that while she lay more dead than alive on the river bank she saw the Hungarians rifle the bodies of dead passengers and cut off their fingers for the purpose of obtaining the rings on the hands of the corpses. Miss Wayne was provided with a suit of men's clothing and rode into Altoona thus arrayed.

Miss Maloney of Woodbury, N. J., a passenger on the parlor car, started to leave the car, and then, fearing to venture out into the flood, returned to the inside of the car. When the water subsided the crew rushed to the car, expecting to find Miss Maloney dead, but the water had not gone high enough to drown her, and she was all right, though greatly frightened,

She displayed a rare amount of forethought in the face of danger, having tied securely around her waist a piece of her clothing, on which her name was written in indelible ink. She fully expected that she would be drowned, and did this in order that her body, if found, might be identified.

When the water was still high Conductor Barr made an attempt to get back to his car from the hill, but after wading up to his arm-pits in the water he was forced to return to safe ground.

THE PENNSYLVANIA RAILROAD'S LAST TRAIN.

The last train to which the Susquehanna River permitted the use of the tracks of the Pennsylvania Railroad between Harrisburg and Lancaster rolled into Broad Street Station, at Philadelphia, at 9:35 p. m. on Saturday, June 1. It was a nondescript train. The last car was a vestibule Pullman, which had never stopped at so many way stations before in its aristocratic life, and which had been cut off the stalled Chicago limited at Harrisburg to be taken back to New York. The rest of the train had started from Harrisburg at 3:40 as the day express, and at Lancaster had been changed into the York and Columbia "tub."

No train's name ever fitted it better. The tub had swam through seven miles of water on its way, water differing in depth from three inches to three feet.

The seven miles of water covered the track between Harrisburg and Highspire. When the newspaper train, touched with the morning dailies and to some extent with the men who make them, dashed drippingly into Harrisburg at half-past seven in the morning it had only encountered three-fourths of a mile of water.

No reports of a great increase in the Susquehanna's output had reached beleaguered Harrisburg during the day, and the express started out with two engines, 1095 and 1105, towing it, and a fair chance of reaching Philadelphia on time. The original three-quarters of a mile of overflow—caused by the back-water of Paxton Creek—was passed without incident.

The water was about up to the bottom steps of the car platforms, and the pilot of the leading engine threw to each side a fine

billow of yellow water, sending a swell like that of a tramp steamer passing Gloucester, in among the floating outhouses and submerged slag heaps of the suburbs of Harrisburg and bringing cheers from thousands who watched the train's advance from their second-story windows and forgot the condition of their first-floor furniture in the excitement of watching the amphibious prowess of the day express.

"We've seen the worst of it," said the elderly, kindly conductor to a couple of excited women passengers as the last of the three-fourths of a mile of billows was thrown from the pilot of 1095. "We've seen the worst of it, but the train will have to wait here a little while—the fires are almost out."

So 1095 and 1102 stood puffing and panting for awhile on the high track while the afternoon sunlight dried their dripping flanks and the baffled Susquehanna rolled its burden of driftwood sullenly southward on their right. Then the day express rolled on again. The dry ground was just about long enough to give the train an impetus for another header into the Susquehanna's overflow.

It was into the Susquehanna itself that the header seemed to be taken this time. It was no longer a question of an overflow creek in a railroad cut. The billows from the prow of 1095 swept not in among overturned outhouses and submerged slag heaps, but out on the broad coffee-colored bosom of the river, to be broken into a thousand chop waves among the churning driftwood. The people in the second-story windows forgot to cheer. The people in the coaches forgot to joke on the men's part and to fret on the women's. It was curious and it was ticklish.

The train was running slowly, very slowly. The wheels were out of sight. The water was swirling among the trucks and lapping at the platforms. The only sign of land locomotion about the day express was an audible one, a watery pounding and rumbling of the wheels on the hidden tracks.

The day express looked like a long broad river serpent wriggling on its belly down along the green river bank. Gradually there was a simultaneous though not concerted movement among the passengers. They began crowding toward the platforms and

looking toward the land side. Suddenly a brakeman broke the queer silence, in a voice which had just the least crescendo of excitement in it:

"If you people don't keep quiet we can't do anything!" he shouted.

The demand was a little absurd, the direction of a land coxswain to "trim ship." Still, it had its uses. It relieved the tension which everybody felt and nobody acknowledged. The passengers retired from the platforms.

Joking began again among the men and fretting among the women. There hadn't been much fun in looking toward the land side, anyway. What had appeared to be a recession of the waters when looked at from above was merely a swelling of the stream from the overflow of the canal which parallels the road for several miles at that point.

All at once the train, which had been moving more slowly for each of a good ten minutes, stopped short. It seemed as if 1095's sharp nose had scented danger like a sensitive horse, and, panting, refused to go further.

Then the engine crews were seen by the passengers to leap from their cabs thigh deep in the water and begin hauling at some sub-aquean obstacle.

"Driftwood," said the same brakeman who had commanded quiet.

STOPPED BY DRIFTWOOD.

So it was. A train stopped by driftwood! It was floating all about, and threatened to impede the progress of the day express altogether. Fence rails from far up-country farms, planks from dismantled signal stations, platforms along the line, railroad ties innumerable, branches and even small trunks of trees floated against the wheels with disjected stacks of green wheat and other ruined crops upon the ever-rising flood of the river.

There had been high, dry land in sight just beyond Highspire Station, but as sure as guns were iron and floods were floods the land was disappearing. The river's rise was steady. The inhabitants of the drowned lands who appeared to take the drowning

easily, though no such a drowning had been known to them in a quarter of a century, had been in large numbers keeping company of the train for the last two miles in skiffs and punts. They rowed close to the cars and towed away the larger drift. They were not entirely on life-saving service. There was a bit of the wreckage in their composition. They towed the trunk and ties into their front yards and anchored them to their window blinds.

Finally the straining backs of the engine crews gave one mighty tug at the hidden obstacle. A huge platform plank floated loose from 1095, and 1095 shrieked triumph. The wheels began to churn the brown water with yellowish white, and 1095 and 1102 ran up on the dry ground like the eagle in the sun, to whom the Irish poet compared the Irish troops at Fontenoy.

As they did so the clatter of a light advancing train was heard from the east, and a sound of cheering. A single engine drawing two crowded cars shot around the bend, and ran with a light heart into the torrent out of which the day express had just emerged.

"They'll never get through," was the unanimous comment of the day express passengers, and their verdict seemed to be confirmed officially by the brakeman who had been excited.

He stood in the door of the car and shouted: "This train will stop at all stations between Lancaster and Bryn Mawr. There will be no more trains between Harrisburg and Lancaster to-night."

Afterward he added: "As this is the last train it will have to take the place of the 'tub.'"

THE FIRST RUSH OF THE DEATH WAVE.

A man who was above the danger line on the right bluff above the town, and who saw the first rush of the death wave, says that it was preceded by a peculiar phenomenon, which he thinks was the explosion of the gas mains. He says that a few minutes before the wall of the water had reached the city there was a tremendous explosion somewhere in the upper part of the place. He said that he saw the fragments of the buildings rise in the air, and the next moment saw two lines of flame down through the city in different directions, and frame buildings were apparently being torn to

pieces and wrecked. The next minute the water came, and he remembers nothing further. There really was an explosion of gas that wrecked a church in the upper part of the city just at the time of the flood. If there was also an explosion of the gas main, the cause of the fire at the bridge is explained. Light frame buildings set on fire by the explosion were picked up bodily and tossed on top of the water into the wreck at the bridge without the fire being extinguished.

Mrs. Fredericks, an aged woman, was rescued alive from the attic in her house. The house had floated from what was formerly Vine street to the foot of the mountains. Mrs. Fredericks says her experience was terrible. She said she saw hundreds of men, women and children floating down the torrent to meet their death, some praying, while others had actually become raving maniacs.

THE REAL HORRORS OF THE DISASTER.

"No one will ever know the real horrors of this accident unless he saw the burning people and debris beside the stone bridge," remarked the Rev. Father Trautwein. "The horrible nature of the affair cannot be realized by any person who did not witness the scene. As soon as possible after the first great crash occurred I hastened to the bridge.

"A thousand persons were struggling in the ruins and imploring for God's sake to release them. Frantic husbands and fathers stood at the edge of the furnace that was slowly heating to a cherry heat and incinerating human victims. Every one was anxious to save his own relatives, and raved, cursed, and blasphemed until the air appeared to tremble. No system, no organized effort to release the pent-up persons was made by those related to them.

"Shrieking, they would command: 'Go to that place; go get her out; for God's sake get her out,' referring to some beloved one they wanted saved.

"Under the circumstances it was necessary to secure organization, and thinking I was trying to thwart their efforts when I ordered another point to be attacked by the rescuers, they advanced upon me, threatened to shoot me, or dash me into the raging river.

"One man who was trying to steer a float upon which his wife sat on a mattress lost his hold, and in a moment the craft swept into a sea of flame and never again appeared. The agony of that man was simply heartrending. He raised his arms to heaven and screamed in his mental anguish, and only ceased that to tear his hair and moan like one distracted. Every effort was made to save every person accessible, and we have the satisfaction of knowing that fully 200 were saved from cremation. One young woman was found under the dead body of a relative.

"A force of men attempted to extricate her, and succeeded in releasing every limb but one leg. For three hours they labored, and every moment the flames crept nearer and nearer. I was on the point several times of ordering the men to chop her leg off. It would have been much better to save her life, even at that loss, than have her burn to death. Fortunately it was not necessary; but the young lady's escape from mutilation or death she will never realize."

The flood and fire claimed among its victims not only the living but the dead. A handsome coffin was found half burned in some charred wreckage down near the point. Inside was found the body of a man shrouded for burial, but so scorched about the head and face as to be unrecognizable. The supposition is that the house in which the dead man had lain had been crushed and the debris partly consumed by fire. The body was carried to the Fourth Ward school house, and marked "unless claimed will be buried in the unknown field."

THE CLOCK STOPPED AT 5:20.

One of the queerest sights in the center of the town was a three-story brick residence standing with one wall, the others having disappeared completely, leaving the floors supported by the partitions. In one of the upper rooms could be seen a mantel with a lambrequin on it and a clock stopped at twenty minutes after five. In front of the clock was a lady's fan, though from the marks on the wall paper the water had been over all these things.

In the upper part of the town, where the back-water from the

flood went into the valley with diminished force, there were many strange scenes.

There the houses were toppled over one after another in a row, and left where they lay. One of them was turned completely over and stood with its roof on the foundations of another house and its base in the air. The owner came back, and getting into his house through the windows, walked about on his ceiling.

Out of this house a woman and her two children escaped safely and were but little hurt, although they were stood on their heads in the whirl.

Every house had its own story. From one a woman sent up in her garret escaped by chopping a hole in the roof. From another a Hungarian named Grevins leaped to the shore as it went whirling past, and fell twenty-five feet upon a pile of metal and escaped with a broken leg.

Another is said to have come all the way from very near the start of the flood and to have circled around with the back water and finally landed on the flats at the city site, where it is still pointed out.

THE SITUATION NINE DAYS AFTER.

A correspondent described the situation at Johnstown nine days after the disaster in this way:

"So vast is the field of destruction that to get an adequate idea from any point level with the town is simply impossible. It must be viewed from a height. From the top of Kernsville Mountain, just at the east of the town, the whole strange panorama can be seen.

"Looking down from the height many things about the flood that appear inexplicable from below are perfectly plain. How so many houses happened to be so queerly twisted, for instance, as if the water had a twirling instead of a straight motion, was made perfectly clear.

"The town was built in an almost equilateral triangle, with one angle pointed squarely up the Conemaugh Valley to the east, from which the flood came. At the northerly angle was the junction of the Conemaugh and Stony creeks. The southern angle pointed up

the Stony Creek Valley. Now about one-half of the triangle, formerly densely covered with buildings, is swept as clear as a platter, except for three or four big brick buildings that stand near the angle which points up the Conemaugh.

"The course of the flood, from the exact point where it issued from the Conemaugh Valley to where it disappeared below in a turn in the river and above by spreading itself over the flat district of five or six miles, is clearly defined. The whole body of water issued straight from the valley in a solid wave and tore across the village of Woodvale and so on to the business part of Johnstown at the lower part of the triangle. Here a cluster of solid brick blocks, aided by the conformation of the land, evidently divided the stream.

"The greater part turned to the north, swept up the brick block and then mixed with the ruins of the villages above down to the stone arch bridge. The other stream shot across the triangle, was turned southward by the bluffs and went up the valley of Stony Creek. The stone arch bridge in the meantime acted as a dam and turned part of the current back toward the south, where it finished the work of the triangle, turning again to the northward and back to the stone arch bridge.

"The stream that went up Stony Creek was turned back by the rising ground and then was reinforced by the back water from the bridge again and started south, where it reached a mile and a half and spent its force on a little settlement called Grubbtown.

"The frequent turning of this stream, forced against the buildings and then the bluffs, gave it a regular whirling motion from right to left, and made a tremendous eddy, whose centrifugal force twisted everything it touched. This accounts for the comparatively narrow path of the flood through the southern part of the town, where its course through the thickly clustered frame dwelling houses is as plain as a highway.

"The force of the stream diminished gradually as it went south, for at the place where the currents separated every building is ground to pieces and carried away, and at the end the houses were only turned a little on their foundations. In the middle of the course they are turned over on their sides or upside down. Fur-



Copyright, 1902, by L. G. Stahl.
WOMEN WASHING CLOTHES IN THE WHITE RIVER, ST. PIERRE.



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SULPHUR LAKE IN AN EXTINCT CRATER.



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WOMEN UNLOADING COAL FROM STEAMER.



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ROAD SCENE, ISLAND OF BARBADOS.

ther down they are not single, but great heaps of ground lumber that look like nothing so much as enormous pith balls.

"To the north the work of the waters is of a different sort. It picked up everything except the big buildings that divided the current and piled the fragments down upon the stone bridge or swept them over and so on down the river for miles.

"This left the great yellow, sandy and barren plain, so often spoken of in the dispatches where stood the best buildings in Johnstown—the opera house, the big hotel, many wholesale warehouses, shops and the finest residences.

"In this plain there are now only the Baltimore & Ohio Railroad train, a school house, the Morrell Company's store and an adjoining warehouse and the few buildings of the triangle. One brick residence, badly shattered, is also standing.

"These structures do not relieve the shocking picture of ruin spread out below the mountains, but by contrast making it more striking. That part of the town to the south where the flood tore the narrow path there used to be a separate village which was called Kernsville. It is now known as the South Side. Some of the queerest sights of the wreck are there, though few persons have gone to see them.

"Many of the houses that are left there scattered helter skelter, thrown on their sides and standing on their roofs, were never in that neighborhood nor anywhere near it before. They came down on the breast of the wave from as far up as Franklin, were carried safely by the factories and the bridges, by the big buildings at the dividing line, up and down on the flood and finally settled in their new resting places little injured.

"A row of them, packed closely together and every one tipped over at about the same angle, is only one of the queer freaks the water played.

"I got into one of these houses in my walk through the town to-day. The lower story had been filled with water and everything in it had been torn out. The carpet had been split into strips on the floor by the sheer force of the rushing tide. Heaps of mud stood in the corners. There was no vestige of furniture. The walls dripped with moisture.

“The ceiling was gone, the windows were out and the cold rain blew in and the only thing that was left intact was one of those worked worsted mottoes that you always expect to find in the homes of working people. It still hung to the wall, and though much awry the glass and frame were unbroken. The motto looked grimly and sadly sarcastic. It was:—

“ ‘There is no place like home.’ ”

“A melancholy wreck of a home that motto looked down upon.

“I saw a wagon in the middle of a side street sticking tongue and all straight up into the air, resting on its tail board, with the hind wheels almost completely buried in the mud. I saw a house standing exactly in the middle of Napoleon street, the side stove in by crashing against some other house and in the hole the coffin of its owner was placed.

“Some scholar’s library had been strewn over the street in the last stage of the flood, for there was a trail of good books left half sticking in the mud and reaching for over a block. One house had been lifted over two others in some mysterious way and then had settled down between them and there it stuck, high up in the air, so its former occupants might have got into it again with ladders.

“Down at the lower end of the course of the stream, where its force was greater, there was a house lying on one corner and held there by being fastened in the deep mud. Through its side the trunk of a tree had been driven like a lance, and there it stayed sticking out straight in the air.

“In the muck was the case and keyboard of a square piano, and far down the river, near the debris about the stone bridge, were its legs. An upright piano, with all its inside apparatus cleanly taken out, stood straight up a little way off. What was once a set of costly furniture was strewn all about it, and the house that had contained it was nowhere.

SOME WONDERFUL STORIES.

“The remarkable stories that have been told about people floating a mile up the river and then back two or three times are easily

credible after seeing the evidences of the strange course the flood took in this part of the town. People who stood near the ruins of Poplar Bridge saw four women on a roof float up on the stream, turn a short distance above and come back and go past again and once more return. Then they were seen to go far down on the current to the lower part of the town and were rescued as they passed the second-story window of a school house. A man who was imprisoned in the attic of his house put his wife and two children on a roof that was eddying past and stayed behind to die alone. They floated up the stream and then came back and got upon the roof of the very house they had left, and the whole family were saved.

“At Grubbtown there is a house which came all the way from Woodvale. On it was a man who lived near Grubbtown, but was working at Woodvale when the flood came. He was carried right past his own home, and coolly told the people at the bridge to bid his wife good-bye for him. The house passed the bridge three times, the man carrying on a conversation with the people on the shore and giving directions for his burial if his body should be found.

“The third time the house went up it grounded at Grubbtown, and in an hour or two the man was safe at home. Three girls who went by on a roof crawled into the branches of a tree, and had to stay there all night before they could make anyone understand where they were. At one time scores of floating houses were wedged in together near the ruins of Poplar street bridge. Four brave men went out from the shore, and stepping from house-roof to house-roof brought in twelve woman and children.

“Some women crawled from roofs into the attics of houses. In their struggles with the flood most of their clothes had been torn from them, and rather than appear on the streets they stayed where they were until hunger forced them to shout out of the window for help. At this stage of the flood more persons were lost by being crushed to death than by drowning. As they floated by on roofs or doors the toppling houses fell over upon them and killed them.

CLEARING THE DEBRIS.

“The workers began on the wreck on Main street just opposite the First National Bank, one of the busiest parts of the city. A

large number of people were lost here, the houses being crushed on one side of the street and being almost untouched on the other, a most remarkable thing considering the terrific force of the flood. Twenty-one bodies were taken out in the early morning and taken to the morgue. They were not much injured, considering the weight of lumber above them.

"In many instances they were wedged in crevices. They were all in a good state of preservation, and when they were embalmed they looked almost lifelike. In this central part of the city examination is sure to result in the unearthing of bodies in every corner. Cottages which are still standing are banked up with lumber and driftwood, and it is like mining to make any kind of a clear space.

"Thirteen bodies were taken from the burning debris at the Stone Bridge at one time yesterday afternoon. None of the bodies were recognizable, and they were put in coffins and buried immediately. They were so badly decomposed that it was impossible to keep them until they could be identified. During a blast at the bridge yesterday afternoon two bodies were almost blown to pieces. The blasting has had the effect of opening the channel under the central portion of the bridge.

"The order that was issued that all unidentified dead be buried is being rapidly carried out. The Rev. Mr. Beall, who has charge of the morgue at the Fourth Ward school house, which is the chief place, says that a large force of men has been put at work digging graves, and at the close of the afternoon the remains will be laid away as rapidly as it can be done.

VOLUNTEERS AT WORK.

"William Flynn has taken charge of the army of eleven hundred laborers who are doing a wonderful amount of work. In an interview he told of the work that has to be done, and the contractors' estimates show more than anything the chaotic condition of this city. 'It will take ten thousand men thirty days to clear the ground so that the streets are passable and the work of rebuilding can be commenced,' said he, 'and I am at a loss to know how the work is to be done. This enthusiasm will soon die out and the volunteers will want to return home.'

“ ‘It would take all summer for my men alone to do what work is necessary. Steps must be taken at once to furnish gangs of workmen, and I shall send a communication to the Pittsburg Chamber of Commerce asking the different manufacturers of the Ohio Valley to take turns for a month or so in furnishing reliefs of workmen.

“ ‘I shall ask that each establishment stop work for a week at a time and send all hands in charge of a foreman and timekeeper. We will board and care for them here. These gangs should come for a week at a time, as no organization can be effected if workmen arrive and leave when they please.’

“A meeting was held here in the afternoon which resulted in the appointment of James B. Scott, of Pittsburg, generalissimo.

“Mr. Scott, in an interview, said that he proposed to clear the town of all wreckage and debris of all descriptions and turn the town site over to the citizens when he has completed his work clean and free from obstructions of all kinds.

HOW BODIES WERE IDENTIFIED.

“I was here when the gang came across one of the upper stories of a house. It was merely a pile of boards apparently, but small pieces of a bureau and a bed spring from which the clothes had been burned showed the nature of the find. A faint odor of burned flesh prevailed exactly at this spot.

“ ‘Dig here,’ said the physician to the men. ‘There is one body at least quite close to the surface.’ The men started in with a will. A large pile of underclothes and household linen was brought up first. It was of fine quality and evidently such as would be stored in the bedroom of a house occupied by people quite well to do.

“Presently one of the men exposed a charred lump of flesh and lifted it up on the end of a pitchfork. It was all that remained of some poor creature who had met an awful death between water and fire.

“The trunk was put on a cloth, the ends were looped up, making a bag of it, and the thing was taken to the river bank. It weighed probably thirty pounds. A stake was driven in the ground to which a tag was attached giving a description of the remains. This is done in many cases to the burned bodies, and they lay covered with cloths upon the bank until men came with coffins to remove them.”

CHAPTER XXV.

DESTRUCTION OF GALVESTON, TEXAS.

Tidal Wave, Hurricane, Loss of Life, Destruction of Property — An Awful Saturday Night—Population—Storm Seasons—How Storms Are Diverted —Storm of 1875 — A Solemn, Somber Sunday— Plundering the Dead — Martial Law Enforced—Decomposition of Bodies—Relief.

A tidal wave joined with a hurricane caused a disaster that has no parallel in the history of the world at Galveston, Texas, on Saturday, September 8, 1900. A frightful West Indian hurricane descended upon the beautiful and progressive city on that date, causing the loss of nearly ten thousand lives and the destruction of millions of dollars' worth of property. The storm then ravaged Central and Western Texas, killing several hundred people and inflicting damage that years were required to repair.

When the gale approached the island upon which Galveston is situated, it lashed the waves of the Gulf of Mexico into a tremendous fury, causing them to rise to all but mountain height, and then it was that, combining their forces, the wind and water pounced upon their prey.

THE WORK OF FOUR HOURS.

In the short space of four hours the entire site of the city was covered by angry waters, while the gale blew at the rate of one hundred miles an hour; business houses, public buildings, churches, residences, charitable institutions, and all other structures gave way before the pressure of the wind and the fierce onslaught of the raging flood, and those which did not crumble altogether were so injured, in the majority of cases, that they were torn down.

Such a night of horror as the unfortunate inhabitants were compelled to pass has fallen to the lot of few since the records of history were first opened. In the early evening, when the water first began to invade Galveston Island, the people residing along the

beach and near it fled in fear from their homes and sought the highest points in the city as places of refuge, taking nothing but the smaller articles in their houses with them. On and on crawled the flood, until darkness had set in, and then, as though possessed of a fiendish vindictiveness, hastened its speed and poured over the surface of the town, completely submerging it—covering the most elevated ground to a depth of five feet and the lower portions ten and twelve feet.

THE FURY OF THE HURRICANE.

The hurricane was equally malignant, if not more fiendish and cruel, and tore great buildings and beautiful homes to pieces with evident delight, scattering the debris far and wide; telegraph and telephone lines were thrown down, railway tracks and bridges—the latter connecting the island and city with the mainland—torn up, and the mighty, tangled mass of wires, bricks, sections of roofs, sidewalks, fences and other things hurled into the main thoroughfares and cross streets, rendering it impossible for pedestrians to make their way along for many days after the waters and gale had subsided.

Forty thousand people—men, women and children—cowered in terror for eight long hours, the intense blackness of the night, the swishing and lapping of the waves, the demoniac howling and shrieking of the wind and the indescribable and awful crashing, tearing and rending as the houses, hundreds at a time, were wrecked and shattered, ever sounding in their ears. Often, too, the friendly shelter where families had taken refuge would be swept away, plunging scores and scores of helpless ones into the mad current which flowed through every street of the town, and fathers and mothers were compelled to undergo the agony of seeing their children drown, with no possibility of rescue; husbands lost their wives and wives their husbands, and the elements were only merciful when they destroyed an entire family at once.

A FEARFUL SATURDAY NIGHT.

All during that fearful night of Saturday until the gray and gloomy dawn of Sunday broke upon the sorrow-stricken city, the

entire population of Galveston stood face to face with grim death in its most horrible shapes; they could not hope for anything more than the vengeance of the hurricane, and as they realized that with every passing moment souls were being hurried into eternity, is it at all wonderful that, after the strain was over and all danger gone, reason should finally be unseated and men and women break into the unmeaning gayety of the maniac?

Not one inhabitant of Galveston old enough to realize the situation had any idea other than that death was to be the fate of all before another day appeared, and when this long and weary suspense, to which was added the chill of the night and the growing pangs of hunger, was at last broken by the first gleams of the light of the Sabbath morn, the latter was not entirely welcome, for the face of the sun was hidden by morose and ugly clouds, from which dripped, at dreary intervals, cold and gusty showers.

Thousands were swallowed up during the darkness and their bodies either mangled and mutilated by the wreckage which had been tossed everywhere, left to decompose in the slimy ooze deposited by the flood or forced to follow the waves in their sullen retirement to the waters of the gulf. The destruction was terrific; miles and miles of railroad track had disappeared, and the bridges carried away; there was absolutely no means of communication with the outer world except by boat. The strange spectacle was then presented of the richest city of its size in the richest country in the world lying prostrate, helpless and hopeless, a prey to ghouls, vultures, harpies, thieves, thugs and outlaws of every sort; its people starving, and the putrid bodies of its dead breeding pestilence.

BUILT UPON THE SAND.

Galveston was built upon the sand. According to Professor Willis L. Moore, Chief of the United States Weather Bureau at Washington, not only Galveston was insecurely built upon the flat sands of the island, but other cities on the Gulf and Atlantic coasts, lying at tide, are subject to the same dangers. The West Indian hurricane may strike almost anywhere from the southern line of North Carolina, on down the coast, around the peninsula of Florida,

and anywhere within the great arc described by the western shores of the Gulf of Mexico. These storms, perhaps 600 miles wide, have a vortex of twenty to thirty miles in diameter. It is in this vortex that the land was laid waste.

The City of Galveston is situated on the extreme east end of the Island of Galveston. It is six square miles in area, its present limits being the limits of the original corporation and the boundaries of the land purchased from the Republic of Texas by Colonel Menard in 1838 for the sum of \$50,000. Colonel Menard associated with himself several others, who formed a town site company with a capital of \$1,000,000. The City of Galveston was platted on April 20, 1838, and seven days later the lots were put on the market. The streets of Galveston are numbered from one to fifty-seven across the island from north to south, and the avenues are known by the letters of the alphabet, extending east and west lengthwise of the island.

FOUNDING THE CITY.

The founders of the city donated to the public every tenth block through the center of the city from east to west for public parks. They also gave three sites for public markets and set aside one entire block for a college, three blocks for a girls' seminary, and gave to every Christian denomination a valuable site for a church.

Galveston Island, with a stretch of thirty-five miles, rises only five feet above the level of high tide. To the south is an unbroken sweep of sea for 800 miles. Twelve hundred miles away is the nesting place of storms—storms that rise out of the dead calm of the doldrums and sweep northward, sometimes with a fury that nothing can withstand. Most of these storms describe a parabola, with the westward arch touching the Atlantic coast, after which the track is northeastward, finally disappearing with the storm itself in the North Atlantic.

WEST INDIAN HURRICANES.

But every little while one of these West Indian hurricanes starts northwestward from its island nest, moving steadily on its course and entering the gulf itself.

September and October are the months of these storms, and of

the two months September is worse. In the ten years between 1878 and 1887, inclusive, fifty-seven hurricanes arose in the warm, moist conditions of the West Indian doldrums. Most of these passed out to sea and to the St. Lawrence River country, where they disappeared. But the hurricane of October 11, 1887, came ashore at New Orleans on October 17, and wrought havoc as it passed up the Eastern States to New Brunswick. The storm of October 8, 1886, reached Louisiana on the 12th, curving again toward Galveston on the Texas coast. It was in this storm that Galveston was flooded with loss of life and property while Indianola was destroyed beyond recovery.

HOW STORMS ARE DIVERTED.

With these non-recurring storms two conditions favor their passage into the gulf. A high barometric area lies over the Atlantic coast States, while a trough of low pressure leads into the gulf and northward into the region of the Dakotas. The hurricane takes the path of least resistance always, and it must pass far northward before it can work its natural way around the tardy high area that hangs over the central coast States. It was this condition exactly which diverted the recent storm to Galveston and the Texas coast.

ORIGIN OF A HURRICANE.

The origin of a hurricane is not fully settled. Its accompanying phenomena, however, are significant to even the casual observer. A long swell on the ocean usually precedes it. This swell may be forced to great distances in advance of the storm and be observed two or three days before the storm strikes. A faint rise in the barometer may be noticed before the sharp fall follows. Wisps of thin, cirrus cloud float for 200 miles around the storm center. The air is calm and sultry until a gentle breeze springs from the southeast. This breeze becomes a wind, a gale, and, finally, a tempest, with matted clouds overhead, precipitating rain and a churning sea below, throwing clouds of spume into the air.

Here are all the terrible phenomena of the West Indian hurricane—the tremendous wind, the thrashing sea, the lightning, the

bellowing thunder, and the drowning rain that seems to be dashed from mighty tanks with the force of Titans.

But almost in an instant all these may cease. The wind dies, the lightning goes out, the rain ceases, and the thunder bellows only in the distance. The core of the storm is overhead. Only the waves of the sea are churning. There may be twenty miles of this central core, a diameter of only one-thirtieth that of the storm. It passes quickly, and with as little warning as preceded its stoppage the storm closes in again, but with the wind from the opposite direction, and the whole phenomena suggesting a reversal of all that has gone before.

No storm possible in the elements presents the terrors that accompany the hurricane. The twisting tornado is confined to a narrow track, and it has no long-drawn-out horrors. Its climax is reached in a moment. The hurricane, however, grows and grows, and when it has reached to 100 or 120 miles an hour nothing can withstand it.

THE STORM OF 1875.

It was this terrible besom of the Southern seas that came so near to taking Galveston off the map. The great storm of 1875 frightened the city. The fate of Indianola in 1886 and the loss of ten lives and \$200,000 worth of property on Galveston Island had kept Galveston uneasy ever since. For fourteen years its old citizens had been admitting that twice in their memory the sea had come in on the island, causing death and destruction, but as sturdily as their conservatism prompted they had insisted that it never could do so again. They gave no consistent reason for their belief. The island was no higher; the force of the sea was as boundless as before; the doldrums of the West Indies still hung over the archipelago in storm-brooding calm. But their belief spread and the island city grew and developed as the old settler never had hoped to see it grow when he squatted there in the sand more than sixty years ago.

HOW GALVESTON DEVELOPED.

This settler stock of Galveston Island was of queer characteristics. Colonel Menard, who founded it, bought the island and es-

established a town-site company to attract immigration. The mainland, as flat and desolate almost as the island, was three miles away. But deep water was there and to the north was an agricultural country that one day would have cotton to export. So the settlers waited. They held to their sand lots and traded with the "mosquito fleet" which sailed up and down the coast from Corpus Christi to New Orleans. This mosquito fleet was the only means for bringing outside traders to the town. As it grew it developed that the city's export trade was all it had. It did a wholesale business that was to its retail business in the proportion of 100 to 1!

In this way Galveston developed in-growing propensities. It scoffed at the mainland for years after the gulf shore began to be peopled. It was satisfied with its railroad "bridges," which were mere trestlework mounted on piling driven into the shallow water of the bay. If the mainland wished to reach the city let it row out or sail out; the city would not go to the expense of a wagon bridge.

As a result Galveston was the most somnolent city in Texas, save on the wharves where tramp and coastwise ships and steamers loaded. When the market house closed by law at 10 o'clock in the morning, and when Galveston's own local population had laid in its supplies for a midday dinner and for supper and breakfast, Strand street took a nap.

In the '80's, however, a new element had been attracted, which was dissatisfied with the mossback order of things. It was not satisfied to make change with a stranger and give or take bits of yellow pasteboard, representing street-car rides, in lieu of nickels.

But these young immigrants were frowned upon by Galveston conservatism. They were a disturbing element. They kept the staid, mossback citizen awake in the afternoons and he did not like it. They were clamoring for sewers and artesian water in mains, whereas the conservative was content to build his rain-water cistern above ground out of doors and strain the baby mosquitoes out of the water through a cloth.

THE OLD AND THE NEW GALVESTON.

When a new waterworks and standpipe had been completed in 1889, and when some new mills had been established under diffi-

culties, affairs had come to a pass when the new Galvestonian and the old found a great gap between. The visiting stranger was the confidant of both sides.

"This town isn't what it used to be," sighed the conservative.

"As a matter of fact," the young business man would say, "Galveston needs to bury about 150 of its 'old citizens' before it can get awake."

This was the situation when the government began to expend money upon the harbor.

This was the situation, slightly altered by time, when the wagon bridge was built to the main land, when the government appropriated \$6,200,000 for the deepening of the harbor, and when export trade from Galveston approached the mark of \$100,000,000 annually.

A SOLEMN, SOMBRE SUNDAY.

The surviving people of Galveston did not awaken from sleep on Sunday morning, for they had not slept the night before. For many weary hours they had stood face to face with death, and knew that thousands had yielded up their lives and that millions of dollars' worth of property had been destroyed.

There was not a building in Galveston which was not either entirely destroyed or damaged, and the people of the city lived in the valley of the shadow of death, helpless and hopeless, deprived of all hope and ambition—merely waiting for the appearance of the official death roll.

Confusion and chaos reigned everywhere; death and desolation were on all sides; wreck and ruin were the only things visible wherever the eye might rest; and with business entirely suspended and no other occupation than the search for and burial of the dead, it was strange that the thoroughfares and residence streets were not filled with insane victims of the hurricane's frightful visit.

For days the people of Galveston knew there was danger ahead; they were warned repeatedly, but they laughed at all fears, business went on as usual, and when the blow came it found the city unprepared and without safeguards.

Owing to the stupefaction following the awful catastrophe, the

people were in no condition, either physical or mental, to provide for themselves, and therefore depended upon the outside world for food and clothing.

The inhabitants of Galveston needed immediate relief, but how they were to get it was a mystery, for Galveston was not yet in touch with the outside world by rail or sea. The city was sorely stricken, and appealed to the country at large to send food, clothing and water. The waterworks were in ruins and the cisterns all blown away, so that the lack of water was one of the most serious of the troubles.

Never did a storm work more cruelly. All the electric light and telegraph poles were prostrated and the streets were littered with timbers, slate, glass and every conceivable character of debris. There was hardly a habitable house in the entire city, and nearly every business house was either wrecked entirely or badly damaged.

LIVING AS BEST THEY COULD.

On Monday there were deaths from hunger and exposure, and the list swelled rapidly. People were living as best they could—in the ruins of their homes, in hotels, in schoolhouses, in railway stations, in churches, in the streets by the side of their beloved dead.

So great was the desolation one could not imagine a more sorrowful place. Street cars were not running; no trains could reach the town; only sad-eyed men and women walked about the streets; the dead and wounded monopolized the attention of those capable of doing anything whatever, and the city was at the mercy of thieves and ruffians.

All the fine churches were in ruins.

From Tremont to P street, thence to the beach, not a vestige of a residence was to be seen.

In the business section of the city the water was from three to ten feet deep in stores, and stocks of all kinds, including foodstuffs, were total losses. It was a common spectacle—that of inhabitants of the fated city wandering around in a forsaken and forlorn way, indifferent to everything around them and paying no attention to inquiries of friends and relatives.

It was thought the vengeance of the fate had been visited in its most appalling shape upon the place which had unwittingly incurred its wrath.

It was fortunate after all, however, that those compelled to endure such trials were temporarily deprived of their understanding; were so stunned that they could not appreciate the enormity of the punishment.

The first loss of life reported was at Rietter's saloon, in the Strand, where three of the most prominent citizens of the town—Stanley G. Spencer, Charles Kellner and Richard Lord—lost their lives and many others were maimed and imprisoned. These three were sitting at a table on the first floor Saturday night, making light of the danger, when the roof suddenly caved in and came down with a crash, killing them. Those in the lower part of the building escaped with their lives in a miraculous manner, as the falling roof and flooring caught on the bar, enabling the people standing near it to crawl under the debris. It required several hours of hard work to get them out. The negro waiter who was sent for a doctor was drowned at Strand and Twenty-first streets, his body being found a short time afterward.

THE DEAD AND THE LIVING.

Fully 700 people were congregated at the City Hall, most of them more or less injured in various ways. One man from Lucas Terrace reported the loss of fifty lives in the building from which he escaped. He himself was severely injured about the head.

Passing along Tremont street, out as far as Avenue P, climbing over the piles of lumber which had once been residences, four bodies were observed in one yard and seven in one room in another place, while as many as sixty corpses were seen lying singly and in groups in the space of one block. A majority of the drowned, however, were under the ruined houses. The body of Miss Sarah Summers was found near her home, corner of Tremont street and Avenue F, her lips smiling, but her features set in death, her hands grasping her diamonds tightly. The remains of her sister, Mrs. Claude Fordtran, were never found.

The report from St. Mary's Infirmary showed that only eight persons escaped from that hospital. The number of patients and nurses was one hundred. Rosenberg Schoolhouse, chosen as a place of refuge by the people of that locality, collapsed. Few of those who had taken refuge there escaped—how many cannot be told and will never be known.

Never before had the Sabbath sun risen upon such a sight, and as though unable to endure it, the god of the day soon veiled his face behind dull and leaden clouds, and refused to shine.

Surely it was enough to draw tears even from inanimate things.

At the Union Depot Baggage-master Harding picked up the lifeless form of a baby girl within a few feet of the station. Its parents were among the lost. The station building was selected as a place of refuge by hundreds of people, and although all the windows and a portion of the south wall at the top were blown in, and the occupants expected every moment to be their last, escape was impossible, for about the building the water was fully twelve feet deep. A couple of small shanties were floating about, but there was no means of making a raft or getting a boat.

Every available building in the city was used as a hospital. As for the dead, they were being put away anywhere. In one large grocery store on Tremont street all the space that could be cleared was occupied by the wounded.

It was nothing strange to see the dead and crippled everywhere, and the living were so fascinated by the dead they could hardly be dragged away from the spots where the corpses were piled.

There were dead by the score, by the hundreds and by the thousands.

It was a city of the dead; a vast battlefield, the slain being victims of flood and gale.

The dead were at rest, but the living had to suffer, for no aid was at hand.

In the business portion of the town the damage could not be even approximately estimated. The wholesale houses along the Strand had about seven feet of water on their ground floors, and all window panes and glass protectors of all kinds were demolished.

On Mechanic street the water was almost as deep as on the

Strand. All provisions in the wholesale groceries and goods on the lower floors were saturated and rendered valueless.

PATHETIC SCENES.

In clearing away the ruins of the Catholic Orphans' Home heartrending evidence of the heroism and love of the Sisters was discovered.

Bodies of the little folks were found which indicated by their position that heroic measures were taken to keep them together so that all might be saved.

The Sisters had tied them together in bunches of eight and then tied the cords around their own waists. In this way they probably hoped to quiet the children's fears and lead them to safety.

The storm struck the Home with such terrific force that the structure fell, carrying the inmates with it and burying them under tons of debris.

Two crowds of children, tied and attached to Sisters, were found. In one heap the children were piled on the Sisters, and the arms of one little girl were clasped around a Sister's neck.

In the wreck of the Home over ninety children and Sisters were killed. It was first believed that they had been washed out to sea, but the discovery of the little groups in the ruins indicated that all were killed and buried under the wreckage.

Sunday and Monday were days of the greatest suffering, although the population had hardly sufficiently recovered from the shock of the mighty calamity to realize that they were hungry and cold.

On Monday all relief trains sent from other cities toward Galveston were forced to turn back, the tracks being washed away.

APPEAL FOR HELP.

On Tuesday Mayor Jones of Galveston sent out the following appeal to the country:

"It is my opinion, based on personal information, that 5,000 people have lost their lives here. Approximately one-third of the residence portion of the city has been swept away. There are sev-

eral thousand people who are homeless and destitute—how many there is no way of finding out. Arrangements are now being made to have the women and children sent to Houston and other places, but the means of transportation are limited. Thousands are still to be cared for here. We appeal to you for immediate aid.

“WALTER J. JONES, Mayor of Galveston.”

Some relief had been sent in, the railroad to Texas City, six miles away, having been repaired, boats taking the supplies from that point into Galveston.

Food and women's clothing were the things most needed just then. While the men could get along with the clothes they had on and what they had secured since Sunday, the women suffered considerably, and there was much sickness among them in consequence. It was noticeable, however, that the women of the city had, by their example, been instrumental in reviving the drooping spirits of the men. There was a better feeling prevalent Tuesday among the inhabitants, as news had been received that within a few days the acute distress would be over, except in the matter of shelter. Every house standing was damp and unhealthy, and some of the wounded were not getting along as well as hoped. Many of the injured had been sent out of town to Texas City, Houston and other places, but hundreds still remained. It would have endangered their lives to move them.

* LOOTING AND PLUNDER.

Tuesday night ninety negro looters were shot in their tracks by citizen guards. One of them was searched and \$700 found, together with four diamond rings and two water-soaked gold watches. The finger of a white woman with a gold band around it was clutched in his hands.

In the afternoon, at the suggestion of Colonel Hawley, a mounted squad of nineteen men, under Adjutant Brokridge, was detailed by Major Faylings to search a house where negro looters were known to have secreted plunder.

“Shoot them in their tracks, boys! We want no prisoners,” said the Major. The plunderers changed their location before the

arrival of the detachment, however, and the raiders came back empty-handed. Twenty cases of looting were reported between 3 and 6 in the evening.

At 6 o'clock a report reached Major Faylings that twenty negroes were robbing a house at Nineteenth and Beach streets.

"Plant them," commanded the young Major, as a half dozen citizen soldiers, led by a corporal, mustered before him for orders.

"I want every one of those twenty negroes, dead or alive," said the Major.

The squad left on the double quick. Half an hour later they reported ten of the plunderers killed.

UNDER MARTIAL LAW.

The following order was posted on the streets at noon of Tuesday:

"To the Public: The city of Galveston being under martial law, and all good citizens being now enrolled in some branch of the public service, it becomes necessary, to preserve the peace, that all arms in this city be placed in the hands of the military. All good citizens are forbidden to carry arms, except by written permission from the Mayor or Chief of Police or the Major commanding. All good citizens are hereby commanded to deliver all arms and ammunition to the city and take Major Faylings' receipt.

"WALTER C. JONES, Mayor."

WHAT A RELIEF PARTY SAW SUNDAY MORNING.

Starting as soon as the water began to recede Sunday morning, a relief party began the work of rescuing the wounded and dying from the ruins of their homes. The scenes presented were almost beyond description. Screaming women, bruised and bleeding, some of them bearing the lifeless forms of children in their arms; men, broken-hearted and sobbing, bewailing the loss of their wives and children; streets filled with floating rubbish, among which there were many bodies of the victims of the storm, constituted part

of the awful picture. In every direction, as far as the eye could reach, the scene of desolation and destruction continued.

It was certainly enough to cause the stoutest heart to quail and grow sick, and yet the searchers well knew they could not unveil one-hundredth part of the misery the destructive elements had brought about.

They knew, also, that the full import and heaviness of the blow could not be realized for days to come.

Although those in the relief party were prepared to see the natural evidences following upon the heels of the mighty storm, they did not anticipate such frightful revelations.

It was a butchery without precedent; a gathering of victims that was so ghastly as to be beyond the power of any man to picture.

AN ATMOSPHERE OF GLOOM.

As the party went on the members met others, who made reports of things that had come under their notice. There were fifty killed or drowned in one section of the town; one hundred in another; five hundred in another. The list grew larger with each report.

It was a matter of wonder, and increasing wonder, too, that a single soul escaped to tell the tale.

No one seemed entirely sane, for there was madness in the very air.

All moved in an atmosphere of gloom; it was difficult to move and breathe with so much death on all sides.

Yet no one could keep his eyes off of those horrible, fascinating corpses. They riveted the gaze.

Life and death were often so closely intermingled they could not be told apart.

It was the apotheosis of the frightful.

Those who had escaped the hurricane and flood were searching for missing dear ones in such a listless way as to irresistibly convey the idea that they did not care whether they found them or not.

It was the languor of hopelessness and despair.

Some of those who had lost their all were even merry, but it was the glee of insanity.

As Sunday morning dawned the streets were lined with people, half-clad, crippled in every conceivable manner, hobbling as best they could to where they could receive attention of physicians for themselves and summon aid for friends and relatives who could not move.

THE LOSS OF EVERYTHING.

Police Officer John Bowie, who had recently been awarded a prize as the most popular officer in the city, was in a pitiable condition; the toes on both of his feet were broken, two ribs caved in, and his head badly bruised, but his own condition, he said, was nothing.

"My house, with wife and children, is in the gulf. I have not a thing on earth for which to live."

The houses of all prominent citizens which escaped destruction were turned into hospitals, as were also the leading hotels. There was scarcely one of the houses left standing which did not contain one or more of the dead as well as many injured.

The rain began to pour down in torrents and the party went back down Tremont street toward the city. The misery of the poor people, all mangled and hurt, pressing to the city for medical attention, was greatly augmented by this rain. Stopping at a small grocery store to avoid the rain, the party found it packed with injured. The provisions in the store had been ruined, and there was nothing for the numerous customers who came hungry and tired. The place was a hospital, no longer a store.

Further down the street a restaurant, which had been submerged by water, was serving out soggy crackers and cheese to the hungry crowd. That was all that was left. The food was soaked full of water, and the people who were fortunate enough to get those sandwiches were hungry and made no complaint.

It was hard to determine what section of the city suffered the greatest damage and loss of life. Information from both the extreme eastern and extreme western portions of the city was difficult to obtain at that time.

In fact, it was nearly impossible, but the reports received indi-

cated that those two sections had suffered the same fate as the rest of the city and to a greater degree.

Thus the relief party wended its way through streets which, but a few hours before, were teeming with life.

Now they were the thoroughfares of death.

It did not seem as if they could ever resound to the throb of quickened vitality again.

It seemed as though it would take years to even remove the wreckage.

As to rebuilding, it appeared as the work of ages.

Annihilation was everywhere.

THE PEOPLE APATHETIC.

It was an absolute impossibility for anyone to form an idea of the extent and magnitude of the disaster within a week of its occurrence. The morning of Sunday, when the wind and the waves had subsided, the streets of the city were found clogged with debris of all sorts. The people of Galveston could not realize for several days what had happened. Four thousand houses had been entirely demolished and hardly a building in the city was fit for habitation.

The people were apathetic; they wandered around the streets in an aimless sort of way, unable to do anything or make preparations to repair the great damage done. The Monday following the catastrophe Galveston was practically in the hands of thieves, thugs, ghouls, vampires, and bandits, some of them women, who robbed the dead, mutilated the corpses which were lying everywhere, ransacked business houses and residences and created a reign of terror which lasted until the officers in command of the force of regulars stationed at the beach barracks sent a company of men to patrol the streets. The governor of the State ordered out all the regiments of the National Guard and various associations of business men also supplied men, who assisted the soldiers in doing patrol duty in the city and suburbs.

The depredations of the lawless element were of an inconceivably brutal character. Unprotected women, whether found upon the streets or in their houses, were subjected to outrage or assault

and robbed of their clothing and jewelry. Pedestrians were held up on the public thoroughfare in broad daylight and compelled to give up all valuables in their possession. The bodies of the dead were despoiled of everything, and in their haste to secure valuables the ghouls would mutilate the corpses, cutting off fingers to obtain the rings thereon and amputating the ears of the women to get the earrings worn therein.

VAMPIRES AND THIEVES.

The majority of the thieves and vampires belonged in the city of Galveston and were re-enforced by desperadoes from outside towns, like Houston, Austin, and New Orleans, who took advantage of the rush to the city immediately after the disaster, obtaining free transportation on the railroad and steamers upon a pretense that they were going to Galveston for the purpose of working with relief parties and the gangs assigned for burial of the dead. Their outrages became so flagrant and the people of the city became so terrified in consequence of their depredations that the city authorities, unable to cope with them, most of the officers of the police department having been victims of the flood, that an appeal was made to the governor to send state troops and procure the preservation of order. Captain Rafferty, commanding Battery O of the First Regiment of Artillery, U. S. A., was also implored to lend his aid in putting down the lawless bands, and he accordingly sent all the men in his command who had not met death in the gale.

There was some delay in getting the state troops to Galveston because so many miles of railroad had been washed away, the Adjutant General being compelled to notify some companies of militia by courier, but Captain Rafferty ordered his men on duty at once, with instructions to promptly shoot all persons found despoiling the dead. Most of the vampires were negroes, some of them, however, being white women, the latter being as savage and merciless in their treatment of the dead as the most abandoned of their male companions.

The regulars were put on duty on Tuesday night, and before morning had shot several of the thugs, who were executed on the

spot when found in the act of robbery. In every instance the pockets of the harpies slain by the United States troops were found filled with jewelry and other valuables, and in some cases, notably that of one negro, fingers were found in their possession which had been cut from the hands of the dead, the vampires being in such a hurry that they could not wait to tear the rings off. On Wednesday evening the government troops came across a gang of fifty desperadoes, who were despoiling the bodies of the dead found enmeshed in the debris of a large apartment house. With commendable promptness the regulars put the ghouls under arrest, and finding the proceeds of their robberies in their possession lined them up against a brick wall and, without ceremony, shot every one of them. In cases where the villains were not killed at the first fire the sergeant administered coup de grace. Many of the thugs begged piteously for mercy, but no attention was paid to their feelings, and they suffered the same stern fate as the rest.

When the state troops arrived in the city they took the same severe measures, and the result was that within forty-eight hours the city was as safe as it had ever been. The police arrested every suspicious character and the jail and cells at the police station were filled to overflowing. These people were deported as soon as possible and notified that if they returned they would be shot without warning. The temper of the citizens of Galveston was such that they would not temporize in any case with those who were neither criminals nor inclined to work. Every able-bodied man in town was impressed for duty in relief and burial parties, and whenever an individual refused to do the work required he was promptly shot. By Thursday morning all the men required had been obtained and relief and burial parties were filled to the quota deemed necessary, and the work of disposing of the bodies of the dead, administering to the wants of the wounded and the clearing of the streets of the debris was proceeding satisfactorily.

DECOMPOSITION OF BODIES.

The dead lay in the streets and vacant places in hundreds and the heat of the sun began to have its natural effect. Decomposition set in and the stench became unbearable. At first an effort

was made to identify the corpses, but it was soon found that work could not be proceeded with, as any delay imperiled the living. Fears entertained in regard to pestilence were speedily verified, and the people of the city were taken ill by scores. It was difficult to obtain men to perform the duty of burying the bloated corpses of the victims of the catastrophe, and consequently the city authorities ordered that the dead be loaded on barges, taken a few miles out to sea, weighted and thrown into the water. The ground had become so water-soaked that it was impossible to dig graves or trenches for the reception of the bodies, although in many instances people buried relatives and friends in their yards and the ground surrounding their residence. Along the beach hundreds of corpses were buried in the sand, but the majority of the burials were at sea. By Wednesday night 2,500 bodies had been cast into the water, while about 500 had been interred within the city limits. Precautions were taken, however, to mark the graves and when the ground had dried sufficiently the bodies were disinterred and taken to the various cemeteries where, after burial, suitable memorials were erected to mark their last resting place. No attempts were made at identification after Wednesday, lists being simply made of the number of victims. The graves of those buried in the sand were marked by headboards with the inscriptions, "White man, aged forty;" "White woman, aged twenty-five," and "male" or "female" child, as the case might be.

DISPOSING OF THE DEAD.

So accustomed did the burial parties become to the handling of the dead that they treated the bodies as though they were merely carcasses of animals and not bodies of human beings, and they were dumped into the trenches prepared for their reception without ceremony of any kind. The excavations were then filled up as hurriedly as possible, the sand being packed down tightly. This might have seemed inhuman, unfeeling, and brutal, but the exigencies of the situation demanded that the corpses be put out of the way as speedily as possible. Great difficulty was experienced in securing men to transport bodies to the wharves where the

barges lay, and it was practically an impossibility to get anyone to touch the bodies of the negro victims, decomposition having set in earlier than in the cases of the whites, and had it not been that members of the fire department volunteered their services the remains of the negroes would have remained unburied for a longer time than they were.

BODIES TO THE FLAMES.

The bodies of the dead were now so offensive that to attempt identification was impossible. Fears were entertained that contagion would spring from the surroundings. Pestilence could only be avoided by cremation. That was the order of the day. Human corpses, dead animals and all debris were therefore to be submitted to the flames. On Thursday upward of 400 bodies, mostly women and children, were cremated, and the work went rapidly on. They were gathered in heaps of twenty and forty bodies, saturated with kerosene and the torch applied.

CONFLICT OF AUTHORITY.

A conflict of authority, due to a misunderstanding, precipitated a temporary disorganization of the policing of the city of Galveston on Thursday. When General Scurry, Adjutant General of the Texas National Guard, arrived at Galveston on Tuesday night, with about 200 militia from Houston, he at once conferred with the Chief of Police as to the plans for guarding property, protecting the lives of citizens and preserving law and order. An order was then issued by the Chief of Police to the effect that the soldiers should arrest all persons found carrying arms, unless they showed a written order, signed by the Chief of Police or Mayor of the city, giving them permission to go armed.

Sheriff Thomas had, meantime, appointed and sworn in 150 special deputy sheriffs. These deputies were supplied with a ribboned badge of authority, but were not given any written or printed commission. Acting under the order issued by the Chief of Police, Major Hunt McCaleb of Galveston, who was appointed as aide to General Scurry, issued an order to the militia to arrest all persons

carrying arms without the proper authority. The result was that about fifty citizens wearing deputy sheriff badges were taken into custody by the soldiers and taken to police headquarters.

The soldiers had no way of knowing by what authority the men were acting with these badges, and would listen to no excuses.

General Scurry and Sheriff Thomas, hearing of the wholesale arrests, called at police headquarters and consulted with Acting Chief Amundsen. The latter referred General Scurry to Mayor Jones. Then General Scurry and Sheriff Thomas held a conference at the City Hall. These two officers soon arrived at an understanding, and an agreement was decided upon to the effect that all persons deputized as deputy sheriffs and all persons appointed as special officers should be permitted to carry arms and pass in and out of the guard lines. General Scurry suggested that the deputy sheriffs and special police—and the regular police, for that matter—guard the city during the daytime and that the militia take charge of the city at night.

General Scurry was acting for and by authority granted by Mayor Jones, and promptly said he was there to work in harmony with the city and county authorities, and that there would be no conflict. When General Scurry and Sheriff Thomas called upon the Mayor, the Mayor said that he knew that if the Adjutant General, the Chief of Police and the Sheriff would get together they could take care of the police work.

It was known that people were coming to Galveston by the score; that many of them had no business there, and that the city had enough to do to watch the lawless element of Galveston without being burdened with the care of outsiders.

All deputy sheriffs wearing the badge issued by the Sheriff carried arms thereafter and made arrests, and were not interfered with in any way by the military guards.

SUPPLIES DELAYED AND PEOPLE STARVING.

On Thursday, September 13, trainload after trainload of provisions, clothing, disinfectants and medicines were lined up at Texas City, six miles from Galveston, all sent to the suffering sur-

vivors of the storm-swept city. Across the bay were thousands of people, friends of the dead and living, waiting for news of the missing ones and an opportunity to help, but only a meager amount of relief had at that time reached the stricken town. Two telegraph wires had been put up and partial communication restored to let the outside world know that conditions there were far more horrible than was at first supposed. That was about all. It was not that which was needed; it was a more practicable connection with the mainland. True, more boats had been pressed into service to carry succor to the suffering and the suffering to succor, but they were few and small, and although working diligently night and day the service was inadequate in the extreme. And the people were still suffering—the sick dying for want of medicine and care; the well growing desperate and in many cases gradually losing their reason.

While there were many who could not be provided for because the necessary articles for them could not be carried in, there were hundreds who were being benefited. Those supplies which had arrived had been of great assistance, but they were far from ample to provide for even a small percentage of the sufferers, estimated at 30,000. Even the rich were hungry. An effort was being made on the part of the authorities to provide for those in the greatest need, but this was found to be difficult work, so many were there in sad condition. A rigid system of issuing supplies was established, and the regular soldiers and a number of citizens were sworn in as policemen. These attended to the issuing of rations as soon as the boats arrived.

Every effort was put forth to reach the dying first, but all sorts of obstacles were encountered, because many of them were so badly maimed and wounded that they were unable to apply to the relief committees, and the latter were so burdened by the great number of direct applications that they were unable to send out messengers.

The situation grew worse every minute; everything was needed for man and beast—disinfectants, prepared foods, hay, grain, and especially water and ice. Scores more of people died that day as a result of inattention and many more were on the verge of dissolution, for at best it was to be many days before a train could be

run into the city, and the only hope was the arrival of more boats to transport the goods.

RELIEF COMMITTEES HARD AT WORK.

The relief committee held a meeting and decided that armed men were needed to assist in burying the dead and clearing wreckage, and arrangements were made to fill this demand. There were plenty of volunteers for this work but an insufficiency of arms. The proposition of trying to pay for work was rejected by the committee, and it was decided to go ahead impressing men into service, issuing orders for rations only to those who worked or were unable to work.

Word was received that refugees would be carried from the city to Houston free of charge. An effort was made to induce all who were able to leave to go, because the danger of pestilence was frightfully apparent.

There were any number willing to depart, and each outgoing boat, after having unloaded its provisions, was filled with people. The safety of the living was a paramount consideration, and the action of the railroads in offering to carry refugees free of charge greatly relieved the situation. The workers had their hands full in any event, and the nurses and physicians also, for neglect, although unavoidable, often resulted in the death of many.

It was estimated \$2,500,000 would be needed for the relief work. The banks of Galveston subscribed \$10,000, but personal losses of the citizens of Galveston had been so large that very few were able to subscribe anything. The confiscation of all foodstuffs held by wholesale grocers and others was decided upon early in the day by the relief committee. Starvation would inevitably ensue unless the supply was dealt out with great care. All kerosene oil was gone, and the gas works and electric lights were destroyed. The committee asked for a shipload of kerosene oil, a shipload of drinking water and tons of disinfectants, such as lime and formaldehyde, for immediate use, and money and food next. Not a tallow candle could be bought for gold, or light of any kind procured.

No baker was making bread, and milk was remembered as a past luxury only.

What was there to do with?

Everything was gone in the way of ovens and utensils.

It was absolutely necessary to let the outside world know the true state of things.

The city was unable to help itself.

In fact, a great part of the mighty, noble State of Texas was prostrate.

Even the country at large was paralyzed at the sense of the magnitude of the disaster, and was for the time being powerless to do anything.

The entire world was thrilled with alarm, it being instinctively felt that the worst had not yet been made known.

Twenty-five thousand people had to be clothed and fed for many weeks, and many thousands supplied with household goods as well. Much money was required to make their residences even fit to live in.

During the first few days after the disaster it was almost beyond possibility to make any estimate of the amount of money necessary to even temporarily relieve the sufferings of the unfortunate people.

APPEAL THROUGH THE ASSOCIATED PRESS.

As a means of enlightenment Major R. G. Lowe, business manager of the Galveston News, was asked to send out a statement to the Associated Press for dissemination throughout the globe, and he accordingly dispatched the following to Colonel Charles S. Diehl, General Manager of the Associated Press, at the headquarters in Chicago:

“GALVESTON, Texas, Sept. 12.—Charles S. Diehl, General Manager the Associated Press, Chicago: A summary of the conditions prevailing at Galveston is more than human intellect can master. Briefly stated, the damage to property is anywhere between \$15,000,000 and \$20,000,000. The loss of life cannot be computed. No lists could be kept and all is simply guesswork. Those thrown out to sea and buried on the ground wherever found will reach the horrible total of at least 3,000 souls.

"My estimate of the loss on the island of the City of Galveston and the immediate surrounding district is between 4,000 and 5,000 deaths. I do not make this statement in fright or excitement. The whole story will never be told, because it cannot be told. The necessities of those living are total. Not a single individual escaped property loss. The property on the island is wrecked; fully one-half totally swept out of existence. What our needs are can be computed by the world at large by the statement herewith submitted much better than I could possibly summarize them. The help must be immediate.

R. G. LOWE,

"Manager Galveston News."

Thursday evening at the Tremont Hotel, in Galveston, occurred a wedding that was not attended with music and flowers and a gathering of merrymaking friends and relatives. On the contrary, it was peculiarly sad. Mrs. Brice Roberts expected some day to marry Ernest Mayo; the storm which desolated so many homes deprived her of almost everything on earth—father, mother, sister and brother. She was left destitute. Her sweetheart, too, was a sufferer. He lost much of his possessions in Dickinson, but he stepped bravely forward and took his sweetheart to his home.

Galveston began, September 14, to emerge from the valley of the shadow of death into which she had been plunged for nearly a week, and on that day for the first time actual progress was made toward clearing up the city. The bodies of those killed and drowned in the storm had for the most part been disposed of. A large number was found when the debris was removed from wrecked buildings, but on that date there were no corpses to be seen save those occasionally cast up by the sea. As far as sight, at least, was concerned, the city was cleared of its dead.

They had been burned, thrown into the water, buried—anything to get them quickly out of sight. The chief danger of pestilence was due almost entirely to the large number of unburied cattle lying upon the island, whose decomposing carcasses polluted the air to an almost unbearable extent. This, however, was not in the city proper, but was a condition prevailing on the outskirts of Gal-

veston. One great trouble heretofore had been the inability to organize gangs of laborers for the purpose of clearing the streets.

FOUR DAYS AFTER THE CATASTROPHE.

The situation in the stricken city on Wednesday, September 12, was horrible indeed. Men, women and children were dying for want of food, and scores went insane from the terrible strain to which they had been subjected.

In his appeal to the country for aid, issued on Tuesday, September 11, Mayor Walter J. Jones said fully 5,000 people had lost their lives during the hurricane, this estimate being based upon personal information. Captain Charles Clarke, a vessel owner of Galveston, and a reliable man, said the death list would be even greater than that, and he was backed in his opinion by several other conservative men who had no desire to exaggerate the losses, but felt that they were justified in letting the country know the full extent of the disaster in order that the necessary relief might be supplied.

It was the general opinion that to hide any of the facts would be criminal.

Captain Clarke was not a sensationalist, but he well knew that the truth was what the people of the United States wanted at that time.

If the people of the country at large felt they were being deceived in anything they would be apt to close their pocketbooks and refuse to give anything.

If told the truth they would respond to the appeal for aid generously.

When relief finally began to pour in it was remarkable how soon the women of the city plucked up courage and went to work with the men.

They had suffered frightfully, but they refused to give up hope.

Many called upon the mayor and offered their services as nurses.

Others prepared bandages for the wounded and aided the physicians in procuring medicines for the sick.

They went among the men who were engaged in burying and



VESUVIUS IN ERUPTION—THE VOLCANO THAT DESTROYED POMPEII,



PETRIFIED HUMAN BODIES FOUND WHILE EXCAVATING THE RUINS OF POMPEII

otherwise disposing of the dead and cheered them with bright faces and soothing words.

They were everywhere, and their presence was as rays of sunshine after the black clouds of the storm.

A regular fleet of steamers and barges was plying between Galveston and Texas City, only six miles distant, and which had railway communication with all parts of the United States. As the railroad line to Texas City had been repaired, trains were sent in there as close together as possible, but this did not prevent many hundreds in Galveston from dying of starvation and lack of medical attendance.

OFFICIAL VERSION OF THE REIGN OF TERROR.

A leading city official of Galveston gave the following version of the Reign of Terror, as the regime of the thugs and ghouls was called:

"Galveston has suffered in every conceivable way since the catastrophe of Saturday. Hurricane and flood came first; then famine, and then vandalism. Scores of reckless criminals flocked to the city by the first boats that landed there, and were unchecked in their work of robbery of the helpless dead Monday and Tuesday.

"Wednesday, however, Captain Rafferty, commanding the regulars at the beach barracks, sent seventy men of an artillery company there to do guard duty in the streets, and, being ordered to promptly shoot all those found looting, carried out their instructions to the letter.

"Over 100 ghouls were shot Wednesday afternoon and evening, and no mercy was shown vandals. If they were not killed at the first volley the troops—regulars of the United States army and those of the Texas National Guard—saw that the coup de grace was administered.

"Most of the robbers were negroes, and when executed were found loaded with spoil—jewelry wrenched from the bodies of women, money and watches and silverware and other articles taken from residences and business houses.

"Not only had these fiends robbed the dead, but they mutilated

the bodies as well, in many instances fingers and ears of dead women being amputated in order to secure the jewelry. Some of the business organizations of the city also furnished guards to assist in patrolling the streets, and fully 1,000 men were on duty.

TRIED BY COURT-MARTIAL AND SHOT.

“Wednesday evening the regulars shot forty-nine ghouls after they had been tried by court-martial, having found them in possession of large quantities of plunder. The vandals begged for mercy, but none was shown them, and they were speedily put out of the way. The bandits, as a rule, obtained transportation to the city by representing themselves as having been engaged to do relief work and to aid in burying the dead. Shortly after the first bunch of thieves was executed another party of twenty was shot. The outlaws were afterward put out of the way by twos and threes, it being their habit to travel in gangs and never alone. In every instance the pockets of these bandits were found filled with plunder.

“More than 2,000 bodies had been thrown into the sea up to Wednesday night, this having been decided upon by the authorities as the only way of preventing a visitation of pestilence, which, they felt, should not be added to the horrors the city had already experienced. Tuesday evening, shortly before darkness set in, three barges, containing 700 bodies, were sent out to sea, the corpses being thrown into the water after being heavily weighted to prevent the possibility of their afterward coming to the surface. As there were few volunteers for this ghastly work, troops and police officers were sent out to impress men for the service, but while these unwilling laborers, after being filled with liquor, agreed to handle the bodies of white men, women and children, nothing could induce them to touch the negro dead. Finally city firemen came forward and attended to the disposal of the corpses of the colored victims. These were badly decomposed, and it was absolutely necessary to get them out of the way to prevent infection.

“No attempt had been made so far to gather up the dead at night, because the gas and electric-light plants were so badly damaged that they could furnish no illumination whatever. By Thursday

night, however, some of the arc lights were ready for use. After Wednesday morning no efforts at identification were made by the searchers after the dead, it being imperative that the bodies be disposed of as soon as possible. While the barges containing the bodies were on their way out to sea lists were made, but that was the only care taken in regard to the victims, many of whom were among the most prominent people of the city. Of the hundreds buried at Virginia Point and other places along the coast not 10 per cent were identified, the stakes at the heads of the hastily dug graves simply being marked, 'White woman, aged 30,' 'White man, aged 45,' or 'Male' or 'Female child.'

"Ninety-six bodies were buried at Texas City, all but eight of which floated to that place from Galveston. Some were identified, but the great majority were not. State troops were stationed at Texas City and Virginia Point to prevent those who could not give a satisfactory account of themselves from boarding boats bound for Galveston. In burying the dead along the shore of the gulf no coffins were used, the supply being exhausted. There was no time to knock even an ordinary pine box together. Cases were known where people have buried their dead in their yards.

CREMATING THE DEAD.

"As soon as possible the work of cremating the bodies of the dead began. Vast funeral pyres were erected and the corpses placed thereon, the incineration being under the supervision of the fire department. Matters had come to such a pass that even the casting of bodies into the sea was not only dangerous to those who handled them, but there was the utmost danger in carrying the decomposed, putrefying masses of human flesh through the streets to the barges on the beach. The cemeteries were not fit for burial purposes, and no attempt whatever was made to reach them until the ground was thoroughly dried out. Then the bodies of those buried in private grounds, yards and in the sands along the beach, not only on Galveston Island but at Virginia Point and Texas City, were removed to the public places of interment, where suitable memorials were set up to mark their last resting places. It might

have been deemed unfeeling and even brutal, but the fact was that the bodies of the unidentified victims received small consideration, being handled roughly by the workmen, and thrown into the temporary graves along the beach as though they were animals and not the remains of human beings. No prayers were uttered save in isolated instances, and the poor, mangled bodies were consigned to the trench as hurriedly as possible. The burying parties had no time for sentiment, and so accustomed had the workers in the 'dead gangs,' as they were named, become to their grewsome task that they even laughed and joked when laying away the corpses.

"Special attention was given the wounded. Physicians were on duty all the time, some of them not having been to bed since Friday night longer than an hour at a time. Victims not badly hurt were put aside for those suffering and actually requiring the services of surgeons. There were thousands of them. There were few in Galveston who did not bear the marks of wounds of some sort."

THE SITUATION A WEEK AFTERWARDS.

A newspaper correspondent who had unusual facilities for getting at the true state of affairs summed up the situation on Saturday, September 15, just a week after the awful visitation, as follows:

"The first week of Galveston's suffering has passed away, and the extent of the disaster which wind and flood brought to the city seems greater than it did even when the blow had just been struck.

"That 5,000 or more of the 40,000 men, women and children who made up the population of the city seven days ago are dead is almost certain. And the money value of the damage to the property of the citizens is so great that no one can attempt to estimate it within \$5,000,000 of the real amount.

"In one thing the effects of the flood are irreparable. Water now covers 5,300,000 square feet of ground that was formerly a part of the city, but which now can never be reclaimed from the gulf.

"A strip of land three miles long and from 350 to 400 feet wide

along the south side of the city, where the finest residences stood, is now covered by the waves even at low tide. The Beach Hotel now has its foundations in the gulf, although before the hurricane it had a fine beach 400 feet wide in front of it. This land is gone forever.

“Like men stunned and dazed, the survivors of the flood have worked and struggled to bury their dead and to make the city habitable for the living, but it may be doubted whether they even yet realize to the full extent what they have lost, or guess the suffering that is in store for them when their moments of leisure come and they begin to miss their friends and loved ones who are dead.

“It is certain now that, however much Galveston has suffered, the city will be rebuilt and be the scene of as great a business as before. But few of the men of the city can pay any attention yet to the work that is necessary for this restoration. To-day they are busy with the roughest work of cleaning the city, of clearing away the debris, of burying the bodies which still are being discovered under ruins each day, and of providing for their simplest necessities.

“The woman who a few days ago was the mistress of a splendid mansion, with every want provided for, may now be seen half-clad making her way through the streets in search of a little food, and esteeming herself fortunate if her family is still intact to gather in the wreckage of the former home. The man who a few days ago was the owner of a great business and the master of many servants may to-day be seen working in the trying tasks of removing wreckage and hauling away to burial the decayed and unrecognizable bodies of the dead, under the direction of armed soldiers and deputy sheriffs, who are there to see that the work is not slighted.

“And around every one is ruin. The broken and shattered houses, the scattered articles of furniture, above all the burning funeral pyres on which the bodies of many of the dead are being consumed, make the city a place of horror even to those whose personal wants are best provided for.

“The peril from the wind and waves was followed for those who survived by a peril of hunger and a peril of disease. There came also a peril to life and property from the great horde of

robbers and inhuman outlaws who were attracted by the helpless condition of the city to seek their prey.

"The splendid response of the country to Galveston's appeal for help has removed all danger of further suffering from hunger, and the prompt action of Governor Sayers, through Adjutant General Scurry, and of Mayor Jones and the citizens' relief committee have re-established order and made the horrible scenes of the stripping of corpses and the assaults on persons no longer possible. The city is still under martial law, and it will remain so, nominally at least, until normal conditions otherwise have been restored.

"The danger of pestilence is still great, however, and indeed the fear that other thousands may fall victims to a scourge of disease is gaining in strength and leading to an exodus of all the women and children and of many of the men of the city, who are crowding the boats to get away to the mainland.

"Added to the danger from the thousands of decomposing bodies both of men and of beasts, which still lie under ruined houses and along the gulf shore, is the danger from the unflushed sewers and closets in the city. Until yesterday it was practically impossible to flush the sewers in any part of the city on account of the lack of water, and although the condition is now much better there is much of evil still.

"Fevers and other diseases which may be bred under these conditions will not show themselves for ten days or longer, at the earliest. Some of the physicians in the city have issued statements to-day calculated to calm the apprehensions of the citizens in this matter. Among them is Dr. W. H. Blount, state health officer, who says that there is no great danger. He refers to the cyclone of 1867, which covered the city with slimy mud, and instead of breeding disease served practically to put an end to the yellow fever then prevalent.

"The work of clearing away the debris in the streets has been carried on with a fair degree of vigor, and it is expected that it will be pushed much faster from now on. The 2,000 laborers whom it has been decided to bring in from outside the city for the work will be able to take up the task without having to worry about the safety

of the remnants of their own property which they may have left unprotected.

“The most important need is, however, for money to pay the men. Adjutant General Scurry said to-day: ‘I have not a dollar to pay the men who are working in the streets all day long. I am not able to say to a single one of these men, “You shall be paid for your work.” I have not the money to make good the promise and I hope and believe that the country will relieve the situation.

“‘We must have this city cleaned up at any cost, and with the greatest speed possible. If it is not done with all haste, and at the same time done well, there may be a pestilence, and if it once breaks out here it will not be Galveston alone that will suffer. Such things spread, and it is not only for the sake of this city, but for others outside of this place that I urge that above all things we want money.

“‘The nation has been most kind in its response to the appeal of Galveston, and from what I hear, food and disinfectants sufficient for temporary purposes at least, are here or on the way. The country does not understand, it cannot understand, unless it visit Galveston, the awful destitution prevailing here. Of all the poor people here, not one has anything. A majority of them could not furnish a single room in which to commence housekeeping even though they had the money to rebuild the room.

“‘These people have absolutely nothing except what is given them by the relief committee. They are in a condition of absolute want, they lack everything, and save for the splendid generosity of the nation they would be utterly without hope.’

“‘The gangs of men in the streets are still finding every now and then badly decomposed bodies. Few of these relics of human life can be recognized, and many of them are naked and without anything about them which would lead to identification. They are disposed of as rapidly as possible, but the work is very offensive and the men engaged in it cannot endure it steadily for any great length of time.

“‘Pull them out of the water as soon as seen and throw them into the flames as soon as taken from the water,’ is the order, and it is effectually carried out,

"The best work in this direction was done along the shore line of the gulf on the south side of the city. During the day bodies were found at frequent intervals, and just at sunset seven were found in the ruins of one house. It is expected that more will be found to-morrow, as the work gang that to-day found seven bodies will clear up the debris where it is known that fifteen people were killed.

"The soldiers from Dallas and Houston who have been here providing for order and helping in the work of cleaning up the city have become exhausted and it has been necessary to relieve them. The Craddock Light Infantry of Terrell arrived to-day to take up the work.

"The exodus to Houston and other neighboring cities is still going on. The sailboats across the bay are crowded to their fullest capacity, and they make as many round trips each day as they can."

CROWDS OF REFUGEES AT HOUSTON.

Houston was the great rendezvous for supplies sent to Galveston, and they poured in there by the carload, beginning with Tuesday. The response to the appeal for aid by the people of Galveston, on the part of the United States, and, in fact, every country in the world, was prompt and generous.

That relief was an absolute necessity was made apparent from the appearance of the refugees who began to flock into Houston as soon as the boats began to run to Galveston after the catastrophe. In addition to these, thousands of strangers arrived also, and the Houston authorities were at a loss as to what to do with them. Some of these visitors were from points far distant, who had relatives in the storm-stricken district, and had come to learn the worst regarding them; others there were who had come to volunteer their services in the relief work, but the greatest number consisted of curious sight-seers, almost frantic in their efforts to get to the stricken city and feed their eyes on the sickening, repulsive and disease-breeding scenes. In addition there were hundreds of the sufferers themselves, who had been brought out of their misery to be cared for here.

The question of caring for these crowds came up at a mass meeting of the Houston general relief committee held Monday. Every

incoming train brought scores more of people, and immediate action was necessary. It was finally decided to pitch tents in Emancipation Park, and there as many of the strangers as possible were cared for. The hotels could not accommodate one-tenth of them.

First attention, naturally, was given the survivors of the storm. Mayor Brashear sent word to Mayor Jones of Galveston that all persons, no matter who they were, rich or poor, ill or well, should be sent to Houston as soon as possible. They would be well provided for, he said. The urgency of his message for the depopulation of Galveston, he explained, was that until sanitation could be restored in the wrecked city everybody possible should be sent away.

It was estimated that nearly 1,000 of the unfortunate survivors were sent to Houston on Tuesday from Galveston in response to Mayor Brashear's request. Every building in Houston at all habitable was opened to them, and all the seriously ill comfortably housed. The others were made as comfortable as possible, but it was not only food and clothing that was wanted; the only relief some of them sought could not be furnished. They were grieving for lost ones left behind—fathers, mothers, sisters, wives and children. Nearly everybody had some relative missing, but few of them were certain whether they were dead or alive. All, however, were satisfied that they were dead.

Men, bareheaded and barefooted, with sunken cheeks and hollow eyes; women and children with tattered clothing and bruised arms and faces, and mere infants with bare feet bruised and swollen, were among the crowds seen on the streets of Houston. Women of wealth and refinement, with hatless heads and gowns of rich material torn into shreds, were among the refugees. At times a man and his wife, and sometimes with one or two children, could be seen together, but such sights were infrequent, for nearly all who went to Houston had suffered the loss of one or more of their loved ones.

But with all this suffering there was a marvelous amount of heroism shown. A week before most of these people had happy homes and their families were around them. The Tuesday following the disaster they were homeless, penniless and with nothing to look forward to. Yet there was scarcely any whimpering or complaining. They walked about the streets as if in a trance; they accepted the

assistance offered them with heartfelt thanks, and apparently were greatly relieved at being away from the scenes of sorrow and woe at home. They were all made to feel at home in Houston, that they were welcome and that everything in the power of the people of Houston would be done for their comfort and welfare, and yet they seemed not to understand half that was said to them.

John J. Moody, a member of the committee sent from Houston to take charge of the relief station at Texas City, reported to the Mayor of Houston on Tuesday as follows:

"To the Mayor—Sir: On arriving at Lamarque this morning I was informed that the largest number of bodies was along the coast of Texas City. Fifty-six were buried yesterday and to-day within less than two miles, extending opposite this place and toward Virginia City. It is yet six miles farther to Virginia City, and the bodies are thicker where we are now than where they have been buried. A citizen inspecting in the opposite direction reports dead bodies thick for twenty miles.

"The residents of this place have lost all—not a habitable building left, and they have been too busy disposing of the dead to look after personal affairs. Those who have anything left are giving it to the others, and yet there is real suffering. I have given away nearly all the bread I brought for our own use to hungry children.

"A number of helpless women and beggared children were landed here from Galveston this afternoon and no place to go and not a bite to eat. To-morrow others are expected from the same place. Every ten feet along the wreck-lined coast tells of acts of vandalism; not a trunk, valise or tool chest but what has been rifled. We buried a woman this afternoon whose finger bore the mark of a recently removed ring."

The United States government furnished several thousand tents for the Houston camp, which was under the supervision of the United States Marine Hospital authorities.

LIVES LOST AND PROPERTY DAMAGE SUSTAINED OUTSIDE OF GALVESTON.

Galveston property loss by the hurricane was hardly less than \$20,000,000; outside of that city, in Houston and other points in

Central and Southern Texas, together with the agricultural and stock-raising districts, the property damage was nearly half that amount, or in the neighborhood of \$10,000,000.

Probably seventy-five villages and towns were swept by the storm, and in most of these places there was loss of life.

It was reliably estimated from reports received at Austin, the capital city of Texas, from these places that the loss of life, exclusive of the death list of Galveston Island and City of Galveston, would aggregate 1,000 people. In many towns the percentage of killed or drowned exceeded that in the City of Galveston. Several towns were swept completely out of existence.

The scene of desolation in the devastated district was terrible to witness. The storm was over 200 miles wide and extended as far inland as Temple, a distance of over 200 miles from the gulf. The cotton crop in the lower counties was completely ruined. The same was true of the rice crop. The distress was keenly felt by the planters and small farmers throughout the storm-swept region.

In Houston the damage was not figured at over \$400,000; at Alvin, \$200,000, the town being virtually destroyed and 6,000 people in that section deprived not only of shelter and food for the time being but all prospect for crops in the year to come.

On the 15th of September, R. W. King sent out the following statement and appeal from Houston after a thorough investigation of the situation in and around Alvin:

"I arrived in Alvin from Dallas and was astonished and bewildered by the sight of devastation on every side. Ninety-five per cent of the houses in this vicinity are in ruins, leaving 6,000 people without adequate shelter and destitute of the necessities of life, and with no means whatever to procure them. Everything in the way of crops is destroyed, and unless there is speedy relief there will be exceedingly great suffering.

The people need and must have assistance. Need money to rebuild their homes and buy stock and implements. They need food—flour, bacon, corn. They must have seeds for their gardens so as to be able to do something for themselves very soon. Clothing is badly needed. Hundreds of women and children are without a change and are already suffering. Some better idea may be had of

the distress when it is known that box cars are being improvised as houses and hay as bedding. Only fourteen houses in the Town of Alvin are standing, and they are badly damaged."

The damage at Hitchcock was not less than \$100,000, but the news from there was disheartening. A bulletin from a reliable source, dated September 15, said:

"Country districts are strewn with corpses. The prairies around Hitchcock are dotted with the bodies of the dead. Scores are unburied, as the bodies are too badly decomposed to handle and the water too deep to admit of burial.

"A pestilence is feared from the decomposing animal matter lying everywhere. The stench is something awful. Disinfecting material is badly needed."

Other outside losses were:

	Property.		Property.
Richmond	\$75,000	Belleville	\$5,000
Fort Bend County.....	300,000	Hempstead	25,000
Wharton	30,000	Brookshire	35,000
Wharton County	100,000	Waller County	100,000
Colorado County	250,000	Arcola	5,000
Angleton	75,000	Sartartia	50,000
Velasco	50,000	Dickinson	30,000
Other points, Brazoria		Texas City	150,000
County	80,000	Columbia	10,000
Sabine	50,000	Sandy Point	10,000
Paton	10,000	Near Brazoria (convicts	
Rollover	10,000	killed)	35,000
Winnie	10,000	Other points	100,000

Damage to railroads outside of Galveston, \$500,000.

Damage to telegraph and telephone wires outside of Galveston, \$50,000.

Damage to cotton crop, estimated on average crop of counties affected, 50,000 bales, at \$60 a bale, \$3,000,000.

Damage to stock was great, thousands of horses and cattle having perished during the storm.

In Brazoria and other counties of that section there was hardly a plantation building left standing. All fences were also gone and

the devastation was complete. Many large and expensive sugar refineries were wrecked. The negro cabins were blown down and many negroes killed. On one plantation, a short distance from the ill-fated town of Angleton, three families of negroes were killed.

The villages of Needville and Basley in Fort Bend county were completely destroyed and over twenty people were killed, most of the bodies having been recovered. Every house in that part of the country was destroyed and there was great suffering among the homeless people.

There was much destitution among the people of Richmond in the same county. Richmond was one of the most prosperous towns in south Texas. It was wholly destroyed and the homeless ones were without shelter. Their food supplies were provided by their more fortunate neighbors until other assistance could be had.

The State authorities heard from the Sartaria plantation, where several hundred State convicts were employed. Every building on the plantation was blown down and the loss to property aggregated \$35,000. Fifteen convicts were caught under the timbers of a falling building and all killed. Over a score of others were injured. In addition to the loss on buildings the entire cane crop was destroyed on this as well as other plantations in that section.

Seven people were killed in the town of Angleton, which was almost completely destroyed. In the neighborhood of Angleton five more persons were killed and their bodies have been recovered. The loss of life in that immediate section far exceeded the estimates given in the earlier reports.

The search for victims of the flood at Seabrook resulted in fifty bodies being recovered. Seabrook was a favorite summer resort with many Texas people, and its hotels were filled with guests. Many were out on pleasure jaunts when the storm came upon them. There were many guests in the private houses which were swept away.

The casualties at Texas City were five.

Velasco, situated near the mouth of the Brazos river, asked for help. Over one-half of the town was destroyed and eleven people lost their lives. Reports from the adjacent country showed that many negroes were killed.

Eleven negro convicts employed on a plantation in Matagorda county were killed by the collapse of a building in which they had sought refuge from the storm.

The town of Matagorda, situated on the coast, was in the brunt of the storm. Several people were killed in the towns of Caney and Elliott, in the same county. The new buildings on the Clemmons convict farm, owned and operated by the State, were destroyed and several convicts injured. The crops were also ruined.

Over fifty negroes were killed in Wharton county, ten being killed on one plantation near the town of Wharton.

Bay City suffered a loss of nearly all of its buildings and three were killed there. There were many homeless people in Missouri City, every house in the town but two being destroyed. The destitute people were living out of doors and camping on the wet ground.

Outside of the cities of Galveston and Houston, the greatest suffering was between Houston and East Lake, inland, and on the coast of the Brazos river. There was no damage at Corpus Christi, Rockport, or in that immediate section of the coast.

People in immediate need of relief were those of the Colorado and Brazos river bottoms. The planters in that section had everything swept away last year, and the flood this year devastated their crops, leaving the tenants in a state bordering on starvation. An enormous acreage was planted in rice and the crop was ready for harvesting when the furious winds laid everything low.

At Wharton, Sugarland, Quintana, Waller, Prairie View and many other smaller places barely a house was left standing. Many of the farm hands had been brought into that section to assist at cotton picking and other farming. The people were huddled in small cabins when the first signs of a storm began brewing. But few escaped. Their clothing and everything was gone. They were absolutely devoid of even the necessities with which to sustain life.

To begin over again the owners of plantations had to rebuild houses, purchase new machinery and new draft animals. The loss of horses and mules in the stricken district was a severe blow. Live stock interests were also greatly harmed.

In the opinion of railway men several years must elapse before the farming districts can be restored to their former conditions.

The advanced prices of building material was a hard blow for the smaller farmers, who in most instances were owners of farms.

Appeals for relief were received from everywhere in the storm center. The season had given promise of producing the best harvest in the previous fifteen years.

Five Houston people were drowned at Morgan's Point—Mrs. C. H. Lucy and her two children, Haven McIlhenny and the five-year-old son of David Rice. Mr. Michael McIlhenny was rescued alive, exhausted and in a state of terrible nervousness.

McIlhenny said the water came up so rapidly that he and his family sought safety upon the roof. He had Haven in his arms and the other children were strapped together. A heavy piece of timber struck Haven, killing him. McIlhenny then took up young Rice, and while he had him in his arms he was twice washed off the roof and in this way young Rice was drowned.

Mrs. Lucy's oldest child was next killed by a piece of timber and the younger one was drowned, and next Mrs. Lucy was washed off and drowned, thus leaving Mr. and Mrs. McIlhenny the only occupants on the roof. Finally the roof blew off the house and as it fell into the water it was broken in twain, Mrs. McIlhenny remaining on one half and McIlhenny on the other. The portion of the roof to which Mrs. McIlhenny clung turned over and this was the last seen of her. McIlhenny held to his side of the roof so distracted in mind as to care little where or how it drifted. He finally landed about 2 p. m. Sunday.

At Surfside, a summer resort opposite Quintana, there were seventy-five persons in the hotel. The water was about it, and the danger was from the heavy logs floating from above. Only a few men worked in the village, so a number of women went into the water to their waists and assisted in keeping the logs away from the hotel, and no one was lost.

At Belleville every house in the place was damaged, and several were demolished, including two churches. One girl was killed near there. Not a house was left at Patterson in a habitable condition.

Two boarding cars were blown out on the main line and whirled along by the wind sixteen miles to Sandy Point, where they collided

with a number of other boarding cars, killing two and injuring thirteen occupants.

A dead child, the destruction of all houses except one and the destitution of some fifty families is the record of the work of the hurricane at Arcadia. From fifty other towns came reports that buildings were wrecked or demolished. Most of them reported several dead and injured.

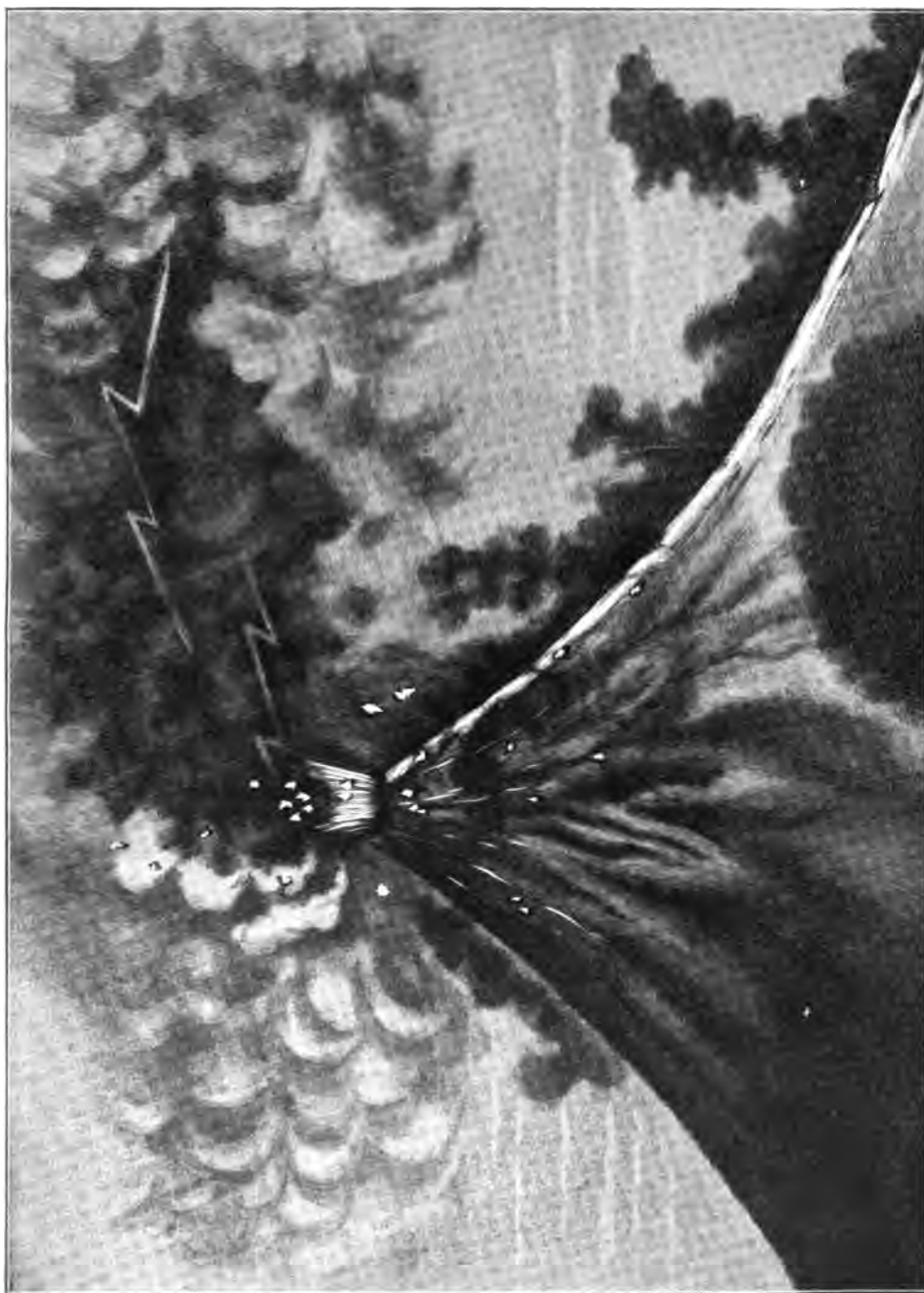
J. D. Dillon, commercial agent of the Santa Fe Railway Company, made a trip over the line of his road from Hitchcock to Virginia Point on foot, September 13, and gave a graphic account of his journey, which was made under many difficulties.

"Twelve miles of track and bridges are gone south of Hitchcock," said he. "I walked, waded and swam from Hitchcock to Virginia Point, and nothing could be seen in all of that country but death and desolation. The prairies are covered with water, and I do not think I exaggerate when I say that not less than 5,000 horses and cattle are to be seen along the line of the tracks south of Hitchcock.

"The little towns along the railway are all swept away, and the sight is the most terrible that I have ever witnessed. When I reached a point about two miles north of Virginia Point I saw some bodies floating on the prairie, and from that point until Virginia Point was reached dead bodies could be seen from the railroad track, floating about the prairie.

"At Virginia Point nothing is left. About 100 cars of loaded merchandise that reached Virginia Point on the International and Great Northern and the Missouri, Kansas and Texas on the night of the storm are scattered over the prairie, and their contents will no doubt prove a total loss."

On Friday, September 14, from early morning until far into the afternoon Governor Sayers was in conference with relief committees from various points along the storm-swept coast. Among the first committees to arrive was one from Galveston. These men consulted at length with the Governor, and as a result of this conference it was decided that the State Adjutant General, General Scurry, should be left in command of the city, which was to be considered under military rule, and that he was to have the exclusive



VOLCANO MAYON.

This is the great Volcano of the Philippines and one of the most destructive in the world. It is situated on the Island of Luzon. The eruption of June 25, 1897, threw lava for a hundred miles.



STREET SCENE, ROSEAU,
Island of Dominica.



STREET SCENE, CHARLOTTE AMELIE,
Island of St. Thomas.



FORT DE FRANCE,
Island of Martinique.



MORNE ROUGE,
Island of Martinique.

control not only of the patrolling of the city, but of the sanitary forces engaged in cleaning the city.

It was decided also that instead of looking to the laboring people of Galveston for work in the emergency an importation of outside laborers to the number of 2,000 should be made to conduct the sanitary work while the people of Galveston were given an opportunity of looking after their own losses and rebuilding their own property without giving any time to the city at large.

It was believed that with the work of these 2,000 outside laborers it would require about four weeks to clean the city of debris, and in the meantime the citizens could be working on their own property and repairing damage there.

Another relief committee from Velasco reported that 2,000 persons were in destitute circumstances, without food, clothing, or homes. Crops had been totally destroyed, all farming implements were washed away, and the people had nothing at hand with which to work the fields.

A relief committee from the Columbia precinct reported 2,500 destitute. Other sections sent in committees during the day, and as a result of all Governor Sayers ordered posthaste shipments of supplies.

The text of the message of sympathy received by President McKinley from the Emperor of Germany was as follows:

"Stettin, Sept. 13, 1900.—President of the United States of America, Washington:—I wish to convey to your excellency the expression of my deep-felt sympathy with the misfortune that has befallen the town and harbor of Galveston and many other ports of the coast, and I mourn with you and the people of the United States over the terrible loss of life and property caused by the hurricane, but the magnitude of the disaster is equaled by the indomitable spirit of the citizens of the new world, who, in their long and continued struggle with the adverse forces of nature, have proved themselves to be victorious.

"I sincerely hope that Galveston will rise again to new prosperity.

"WILLIAM J. R."

The President replied:

"Executive Mansion, September 14, 1900.—His Imperial and Royal Majesty Wilhelm II., Stettin, Germany:—Your majesty's message of condolence and sympathy is very grateful to the American government and people, and in their name, as well as on behalf of the many thousands who have suffered bereavement and irreparable loss in the Galveston disaster, I thank you most earnestly.

"WILLIAM MCKINLEY."

TWO WOMEN TELL HOW THEY WERE AFFECTED AT GALVESTON.

A woman—a newspaper correspondent, and the first of the fair sex from the outside to gain admittance to the Sealed City of Galveston—wrote a description of what she saw and heard there. She arrived in Galveston on Friday, and although she was on a relief train carrying doctors, nurses and medical supplies, she had hard work to get past the file of soldiers at the wharf, but she at last succeeded.

Said she:

"The engineer who brought our train down from Houston spent the night before groping around in the wrecks on the beach looking for his wife and three children. He found them, dug a rude grave in the sand and set up a little board marked with his name.

"The man in front of me on the car had floated all Monday night with his wife and mother on a part of the roof of his little home. He told me that he kissed his wife good-bye at midnight and told her that he could not hold on any longer; but he did hold on, dazed and half-conscious, until the day broke and showed him that he was alone on his piece of driftwood. He did not even know when the woman that he loved had died.

"Every man on the train—there were no women there—had lost some one that he loved in the terrible disaster, and was going across the bay to try and find some trace of his family."

As the train neared Texas City, near Galveston, a great flame leaped up, and she said to one of four men near her: "What a terrible fire! Some of the large buildings must be burning."

She then went on to say:

"A man who was passing down the aisle heard me. He stopped, put his hand on the car seat and turned down and looked into my face, his face like the face of a dead man; but he laughed.

"'Buildings!' he said. 'Don't you know what is burning over there? It is my wife and children—such little children! Why, the tallest was not as high as this'—he laid his hand on the car seat—'and the little one was just learning to talk.

"'She called my name the other day, and now they are burning over there—they and the mother who bore them. She was such a little, tender, delicate thing, always so easily frightened, and now she's out there all alone with the two babies, and they're burning.'

"The man laughed again and began again to walk up and down the car.

"'That's right,' said the Marshal of the State of Texas, taking off his broad hat and letting the starlight shine on his strong face. 'That's right. We had to do it. We've burned over 1,000 people to-day, and to-morrow we shall burn as many more.

"'Yesterday we stopped burying the bodies at sea; we had to give the men on the barges whisky to give them courage to do the work. They carried out hundreds of the dead at one time, men and women, negroes and white people, all piled up as high as the barge could stand it, and the men did not go out far enough to sea, and the bodies have begun drifting back again.'

"'Look!' said the man who was walking the aisle, touching my shoulder with his shaking hand. 'Look there!'

"Before I had time to think I had to look, and saw floating in the water the body of an old woman, whose hair was shining in the starlight. A little farther on we saw a group of strange driftwood.

"We looked closer and found it to be a mass of wooden slabs, with names and dates cut upon them, and floating on top of them were marble stones, two of them.

"The graveyard, which has held the sleeping citizens of Galveston for many, many years, was giving up its dead. We pulled up at a little wharf in the hush of the starlight; there were no lights anywhere in the city, except a few scattered lamps shining from a

few desolate, half-destroyed houses. We picked our way up the street. The ground was slimy with the debris of the sea.

"We climbed over wreckage and picked our way through heaps of rubbish. The terrible, sickening odor almost overcame us, and it was all that I could do to shut my teeth and get through the streets somehow. The soldiers were camping on the wharf front, lying stretched out on the wet sand, the hideous, hideous sand, stained and streaked in the starlight with dark and cruel blotches. They challenged us, but the marshal took us through under his protection. At every street corner there was a guard, and every guard wore a six-shooter strapped around his waist.

"I went toward the heart of the city. I do not know what the names of the streets were or where I was going. I simply picked my way through masses of slime and rubbish which scar the beautiful wide streets of the once beautiful city.

"They won't bear looking at, those piles of rubbish. There are things there that gripe the heart to see—a baby's shoe, for instance, a little red shoe, with a jaunty tasseled lace—a bit of a woman's dress and letters.

"The stench from these piles of rubbish is almost overpowering. Down in the very heart of the city most of the dead bodies have been removed, but it will not do to walk far out. To-day I came upon a group of people in a by-street, a man and two women, colored. The man was big and muscular, one of the women was old and one was young.

"They were dipping in a heap of rubbish and when they heard my footsteps the man turned an evil, glowering face upon me and the young woman hid something in the folds of her dress. Human ghouls, these, prowling in search of prey.

"A moment later there was a noise and excitement in the little narrow street, and I looked back and saw the negro running, with a crowd at his heels. The crowd caught him and would have killed him, but a policeman came up.

"They tied his hands and took him through the streets with a whooping rabble at his heels. It goes hard with a man in Galveston caught looting the dead in these days.

"A young man well known in the city shot and killed a negro

who was cutting the ears from a living woman's head to get her ear rings out. The negro lay in the streets like a dead dog, and not even the members of his own race would give him the tribute of a kindly look.

"The abomination of desolation reigns on every side. The big houses are dismantled, their roofs gone, windows broken, and the high water mark showing inconceivably high on the paint. The little houses are gone—either completely gone as if they were made of cards and a giant hand which was tired of playing with them had swept them all off the board and put them away, or they are lying in heaps of kindling wood covering no one knows what horrors beneath.

"The main streets of the city are pitiful. Here and there a shop of some sort is left standing. South Fifth street looks like an old man's jaw, with one or two straggling teeth protruding. The merchants are taking their little stores of goods that have been left them and are spreading them out in the bright sunshine, trying to make some little husbanding of their small capital. The water rushed through the stores as it did through the houses, in an irresistible avalanche that carried all before it. The wonder is not that so little of Galveston is left standing, but that there is any of it at all.

"Every street corner has its story, in its history of misery and human agony bravely endured. The eye-witnesses of a hundred deaths have talked to me and told me their heart-rending stories, and not one of them has told of a cowardly death.

"The women met their fate as did the men, bravely and for the most part with astonishing calmness. A woman told me that she and her husband went into the kitchen and climbed upon the kitchen table to get away from the waves, and that she knelt there and prayed.

"As she prayed, the storm came in and carried the whole house away, and her husband with it, and yesterday she went out to the place where her husband had been, and there was nothing there but a little hole in the ground.

"Her husband's body was found twisted in the branches of a tree, half a mile from the place where she last saw him. She recog-

nized him by a locket he had around his neck—the locket she gave him before they were married. It had her picture and a lock of the baby's hair in it. The woman told me all this without a tear or a trace of emotion. No one cries here.

"They will stand and tell the most hideous stories, stories that would turn the blood in the veins of a human machine cold with horror, without the quiver of an eyelid. A man sat in the telegraph office and told me how he had lost two Jersey cows and some chickens.

"He went into minute particulars, told how his house was built and what it cost, and how it was strengthened and made firm against the weather. He told me how the storm had come and swept it all away, and how he had climbed over a mass of wabbling roofs and found a friend lying in the curve of a big roof, in the stoutest part of the tide, and how they two had grasped each other and what they said.

"He told me just how much his cows cost and why he was so fond of them, and how hard he had tried to save them, but I said: 'You have saved yourself and your family; you ought not to complain.'

"The man stared at me with blank, unseeing eyes.

" 'Why, I did not save my family,' he said. 'They were all drowned. I thought you knew that; I don't talk very much about it.'

"The hideous horror of the whole thing has benumbed every one who saw it."

ASSISTANCE QUICK AND CHARITY BOUNTIFUL.

The American people proved their charitable spirit in the case of Galveston as they have proved it at all times,—as they are proving it now in the case of Martinique.

On September 18, ten days after the storm swept over Galveston, Chicago had raised over \$100,000 for the Galveston sufferers; New York nearly \$300,000; St. Louis nearly \$70,000, and other cities the following amounts:

Boston	\$32,700
Philadelphia	28,320
Pittsburg	27,108
New Orleans	26,100
San Francisco	18,000
Kansas City	17,000
Louisville	14,000
Milwaukee	14,046
Baltimore	15,000
Denver	13,000
Minneapolis	12,000
Newark, N. J.	12,000
Cleveland	9,345
Memphis	9,123
Cincinnati	9,000
Colorado Springs	7,200
St. Paul	7,000
Topeka, Kan.	5,438
Charleston, S. C.	6,000
Omaha, Neb.	6,212
Los Angeles	5,184
Detroit, Mich.	5,190
Indianapolis	4,000
Helena, Mont.	4,108
Johnstown, Pa.	3,000
Columbus, Ohio	3,100
South Bend, Ind.	1,985
Springfield, Ill.	2,000
Portland, Ore.	2,100
Lexington, Ky.	2,098

The United States embassy at Berlin, Germany, cabled \$500 to Governor Sayers on September 17.

Later food, clothing, lumber and medicines, as well as money, were forwarded in large quantities.

The courage and self-helpfulness of the people of the United States is also well represented in the case of Galveston. The city which was practically wiped off the map in 1900 has been in the short time intervening practically rebuilt, but far more solidly and more beautiful than formerly. Galveston is once more the great port of the South.

CHAPTER XXVI.

THE WEST INDIAN VOLCANOES AND THE NICARAGUA CANAL.

Disturbance in Lesser Antilles—Professor Heilprin's Views Regarding the Collapse of These Islands—Nicaragua Canal Route in Danger—Weakness of Earth's Crust in Certain Localities—Scientists' Former Ideas of Craters Scouted—The Future of the World—Drilling the Earth for Heat—Prophecies for the Year 1902—God Reigns—The World Lives.

Since the recent disturbance of nature in the Lesser Antilles, inquiring minds have been at work and to-day the question is being asked, "Is it wisdom on the part of the United States to further consider the Nicaragua canal route?"

Professor Angelo Heilprin, the eminent geologist and authority on volcanology, declares there is danger that all the West Indian reef islands will collapse and sink into the sea from the effects of the volcanic disturbances now in progress. More than that, he says, the Nicaraguan canal route is in danger because it is in the eruption zone.

WEST INDIES MAY DISAPPEAR.

"In my opinion the volcano eruptions are not the only things to be feared," he continued. "It is altogether likely that the volcanic disturbance now going on may result in the collapse of the islands whose peaks spring into activity.

"The constant eruptions of rock, lava and ashes means that a hole, as it were, is being made in the bosom of the earth. When this hole reaches a great size, that which is above will be without support, and then subsidence must follow."

In Professor Heilprin's opinion the outburst of Mont Pelee and the great Soufriere on Mont Garou are arguments against the use of the Nicaragua route for a transisthmian canal.

In speaking directly upon the subject of the eruptions in the Windward Islands, Professor Heilprin said that it would be impossible for any geologist to assign a cause for the disturbance, and continued:

WEAKNESS OF THE EARTH'S CRUST.

"The volcanoes of Martinique and St. Vincent, and of the neighboring islands of the Caribbean, are situated in a region of extreme weakness of the earth's crust, which has its parallel in the Mediterranean basin on the opposite side of the Atlantic.

"This American region of weakness extends westward from the Lesser Antilles across the Gulf of Mexico into Mexico proper, where are located some of the loftiest volcanoes of the globe, Popocateptl and Orizaba, both now in somnolent condition, and including the more westerly volcano of Colima, which has been almost continuously in eruption for ten years.

"This same region of weakness includes nearly the whole of Central America. Volcanoes in Costa Rica, Nicaragua and Guatemala have been repeatedly active, some almost to the present time, many with destructive effect, and it should be no surprise to have some of them burst out with the same vigor and intensity as Mont Pelee or the Soufriere."

Walter Wellman, a Washington correspondent of the Chicago Record-Herald, says:

"It is believed by conservative senators that an isthmian canal bill will be passed, and that the disasters in the Lesser Antilles have smothered all hopes of the advocates of the Nicaragua route. Eminent scientists have long contended that the Nicaragua route should never be adopted because a canal there will have to pass through a volcanic country. They have pointed out that volcanoes are never to be ignored, no matter how long they have been sleeping, for no one can tell when they will rouse themselves and work terrible destruction.

"Scientists have scouted the theory that a volcanic region is safe because the craters are vent holes through which the titanic subterranean forces may find outlet. Mont Pelee has settled this theory once for all.

NICARAGUA A VOLCANIC COUNTRY.

"Nicaragua is a volcanic country. There are volcanic peaks in Lake Nicaragua, through which the canal must pass. The route of

the proposed canal lies in a dangerous area. There are ten volcanic mountains within a short distance of the canal line.

"At Panama there are no volcanoes, and none within 200 miles. Earthquakes are not unknown there, but the danger from this source is far less than in Nicaragua."

The interior of the earth is so hot that it is estimated that in a mine the temperature rises one degree for every sixty feet a shaft is sunk. Far deeper than any shaft has ever been sunk, the earth is simply a mass of molten lava—melted stone, in other words, and between us and this mass of fire there is a crust that bears about the same proportion to the depth of the earth that the skin of an apple does to the apple itself.

In some places this crust is thinner than it is in other places, because in some places there has not been so much time for the surface of the earth to cool, and it is the continual changing of the earth's surface—which in appearance may be likened to the skin of a shriveled apple—that produces earthquakes and volcanoes.

The pressure of the earth's crust upon the molten lava brings on a conflict that results in seismic shocks and often forces the lava up through the crust of the earth. Thus huge mountains are often formed.

Mont Pelee, which has just killed so many thousand people, was of volcanic origin. It had for centuries poured out molten lava, which had run over and increased its height and size.

INQUIRY INTO THE FUTURE.

Recalling the great natural calamities in the past history of the world as given in the above brief and somewhat incomplete record, it is suggestive of the human feeling regarding these great calamities at the present day in comparison with those of past times. Volumes upon volumes have been written upon the destruction of Pompeii, by which, probably, not more than 3,000 souls were destroyed, which took place in the very dawn of the Christian era. How it has been talked about, written about and referred to through all the centuries. It was a natural tragedy of the most appalling nature. Since then similar great natural calamities have taken

place, and how little they are talked about and how soon they pass out of human thought. In the past ages, when the world's population was small, few such terrible events occurred and there were few to tell about them. In recent times, the world has been moving in an era of great events; of great wars, great deeds, great triumphs, great natural calamities—Johnstown, Galveston and similar occurrences in which thousands of human lives have been destroyed. We have become accustomed to them. The destruction of St. Pierre with about 30,000 human beings is a terrible calamity, but it is looked upon very differently in 1902 from what the destruction of Pompeii was in 79. Are still greater national calamities awaiting the people of the globe? Do we know the lesson of the Mont Pelee eruption? We only gather from it that the processes of nature in the destruction of entire cities with thousands of inhabitants are in a state of evolution now as they were when our globe was thousands of years younger than it is. We dare not project our inquiry into the future to conjecture what the million of years will unfold.

HUMAN NATURE THE SAME.

Some scientists expressed no surprise at the catastrophe in the West Indies. They knew it was coming; had known it for many years, and immediately undertook to explain it with considerable circumstantiality. It is a misfortune that they did not make public their information—at least, to the people in Martinique. It might have saved some lives—not many, perhaps, for human nature is peculiar. Many people in St. Pierre had horses saddled ready for flight days before the final outburst; but hung on, in spite of the muttering and rumbling and shaking, and perished at last in the fiery shower. There are towns and villages at this moment on the sides of a volcano which has burned whole communities before now, and which is almost constantly in eruption.

It would be folly to talk of the stupidity of such people. Pliny the elder—than whom there was no greater Roman—defied the thunders of Vesuvius until engulfed in a sea of ashes. Human nature is prone to disregard danger until too late for escape. Many proceed on the principle that what has occurred once will not occur

in the same spot again. Nor is it reasonable to abandon a locality because it has once been visited by a cataclysm. There is not a spot on the globe which has not been thus visited at one time or another. In very recent years Charleston has been the scene of a terrible convulsion, but the people are living and working and building there as though nothing of the sort had ever happened. The people in St. Pierre were like other people, and those who are left are entitled to the practical sympathy of mankind.

DRILL THE EARTH FOR HEAT.

One of Ohio's prominent oil men suggests the heating of homes with the internal heat of the earth. He proposes to drill a well down to such a depth as will be necessary to strike a volcanic formation such as will belch forth hot water, steam, lava or some other heated substance. It is a known fact that heat grows more intense as the distances from the surfaces increase. Scientists have long advanced the idea that the interior of the earth a short distance from the outer surface is in an intensely heated state. So far wells have been drilled scarcely deeper than a mile. If drilling tools could permit the sinking of a well five or ten times that depth some startling results might follow. Suppose a vein of volcanic substance should be drilled into of the same strife as that which destroyed the island of Martinique recently, such a well might soon prove to be an elephant on the hands of the owner. However, laying all joking aside, it is quite a prevailing thought among scientists that some day the world will be heated from its tremendous and inexhaustible supply in the interior. Such a state of affairs appears rather improbable at present but who can tell, more wonderful things have happened.

PROPHECIES FOR THE YEAR 1902.

This year 1902 is one referred to by many alleged prophets and seers as a period in which sun spots, earthquakes and eruptions were to be prevalent. The sun spots have not yet shown up, but the quakes have been many, and in opposite parts of the world. Since the dawning of New Year's day there have been earthquakes—

In the Caucasus, some 8,000 lives lost.
In Japan, no great loss of life.
In San Salvador, no loss of life.
In Guatemala, several thousand killed.
In the Galveston region, no loss of life.
In California, no loss of life.
In Hawaii, no loss of life.
In Alaska near Mount Elias, several lives lost.

There have been also severe glacial slides, breaking away of eminences, a continuation of the general earth process of leveling down, humbling the mighty to the plane of the low. That the prophets or seers had anything to do with all this is absurd—the earth has her burdens as well as man, and 1902 happens to be one of the years in which she is toppling some of them off. Mont Pelee was her voice speaking.

GOD REIGNS.

With all the foregoing thoughts and statements, some may wonder if it is worth while to live. Most certainly it is, and these are grand days in which to live. Let us go on down through the ages living our best and doing our best. Let us remember that God reigns. If at times these activities of nature cause us to halt, let us not halt long, but push on. It is our life, our destiny. As we go along let us comfort ourselves with the beautiful things of life—do good deeds—think pure thoughts and read good literature.

THE DAY IS DONE.

(BY HENRY WADSWORTH LONGFELLOW.)

The day is done, and the darkness
Falls from the wings of Night,
As a feather is wafted downward
From an eagle in his flight.

I see the lights of the village
Gleam through the rain and the mist,
And a feeling of sadness comes o'er me
That my soul cannot resist:

THE NICARAGUA CANAL.

A feeling of sadness and longing
That is not akin to pain,
And resembles sorrow only
As the mist resembles the rain.

Come, read to me some poem,
Some simple and heartfelt lay,
That shall soothe this restless feeling,
And banish the thoughts of day.

Not from the grand old masters,
Not from the bards sublime,
Whose distant footsteps echo
Through the corridors of Time.

For, like strains of martial music,
Their mighty thoughts suggest
Life's endless toil and endeavor;
And to-night I long for rest.

Read from some humbler poet,
Whose songs gushed from his heart
As showers from the clouds of summer
Or tears from the eyelids start;

Who, through long days of labor
And nights devoid of ease,
Still heard in his soul the music
Of wonderful melodies.

Such songs have power to quiet
The restless pulse of care,
And come like the benediction
That follows after prayer.

Then read from the treasured volume
The poem of thy choice,
And lend to the rhyme of the poet
The beauty of thy voice.

And the night shall be filled with music,
And the cares that infest the day
Shall fold their tents, like the Arabs,
And as silently steal away.

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